新常用中藥之藥理
附　錄

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VII. 泌尿器系疾患（099-105）

No.	Chinese Name	Official Name	Scientific Name	Family Name	Page
099	木 通	Akebiae Quillatal Caulis	*Akebia quinata* Decaisne	Lardizabalaceae	413
100	豬 苓	Polyporus	*Polyporus umbellatus* Fries	Polyporaceae	423
101	甘 遂	Euphorbiae Kansui Radix	*Euphorbia kansui* Liou	Euphorbiaceae	426
102	山茱萸	Corni Fructus	*Cornus officinalis* Sieb. et Zucc.	Cornaceae	430
103	滑 石	Talcum			△
104	車前子	Plantaginis Semen	*Plantago asiatica* Linn'e	Plantaginaceae	435
105	龍 膽	Gentianae Scabrae Radix	*Gentiana scabra* Bunge	Gentianaceae	436
VII-1	硝 石	Nitrate			△
VII-2	茅 根	Imperatae Rhizoma	*Imperata cylindrica* Beaub. var. *majoa* Hubb.	Gramineae	△

VIII. 婦產科系疾患（106-115）

No.	Chinese Name	Official Name	Scientific Name	Family Name	Page
106	當 歸	Angelicae Radix	*Angelica sinensis* Diels	Umbelliferae	443
107	益母草	Leonuri Herba	*Leonurus sibiricus* L.	Labiatae	446
108	紅 花	Carthami Flos	*Carthamus tinctorius* Linn'e	Compositae	452
109	香附子	Cyperi Rhizoma	*Cyperus rotundus* L.	Cyperaceae	458
110	芫 花	Daphnis Genkwae Flos	*Daphne genkwa* Sieb. et Zucc.	Thymelaceae	459
111	蟅 蟲	Eupolyphaga	*Eupolyphaga sinensis* Walker	Blattidae	△
112	水 蛭	Hirudo	*Hirudo nipponia* Whitman	Hirudidae	△
113	川 骨	Nupharis Rhizoma	*Nuphar japonicum* DC.	Nymphaeaceae	461
114	虻 蟲	Tabanus	*Tabanus yao* Macq.	Tabanidae	△
115	蛇床子	Cnidi Monnieri Fructus	*Cnidium monnieri* Cuss.	Umbelliferae	462

IX. 皮膚・粘膜疾患（116-123）

No.	Chinese Name	Official Name	Scientific Name	Family Name	Page
116	蕺 菜	Houttuyniae Herba	*Houttuynia cordata* Thunberg.	Saururaceae	471
117	夏枯草	Prunellae Spica	*Prunella vulgaris* L. var. *lilacina* Nakai	Labiatae	474
118	牛蒡子	Arctii Fructus	*Arctium lappa* L.	Compositae	476
119	紫 根	Lithospermi Radix	*Lithospermum erythrorhizon* Sieb. et Zucc.	Boraginaceae	477
120	土茯苓	Smilacis Glabrae Rhizoma	*Smilax glabra* L.	Liliaceae	482
121	敗 醬	Patriniae Rhizoma et Radix	*Patrinia scabiosaefolia* Fisch	Valerianaceae	483
122	反 鼻	Agkistrodon Japonicae	*Agkistrodon blomhoffii* Boie	Viperidae	△
123	揚梅皮	Myricae Cortex	*Myrica rubra* Sieb. et Zucc.	Myricaceae	486
IX-1	櫻 皮	Pruni Cortex	*Prunus jamasakura* Sieb. ex Koidz.	Rosaceae	487

△成分未表示

X. 抗菌・驅蟲類（124-135）

No.	Chinese Name	Official Name	Scientific Name	Family Name	Page
124	黃　連	Coptidis Rhizoma	*Coptis chinensis* Franch.	Ranunculaceae	491
125	黃　柏	Phellodendri Cortex	*Phellodendron amurense* Ruprecht	Rutaceae	492
126	黃　芩	Scutellariae Radix	*Scutellaria baicalensis* Georgi	Labiatae	494
127	金銀花	Lonicerae Flos	*Lonicera japonica* Thunberg.	Caprifoliaceae	498
128	連　翹	Forsythiae Fructus	*Forsythia suspensa* Vahl.	Oleaceae	506
129	蒲公英	Taraxaci Herba	*Taraxacum mongolicum* Hand.-Mazz.	Compositae	510
130	牡丹皮	Moutan Radicis Coutex	*Paeonia moutan* Sims	Paeonicacea	514
131	使君子	Quisqualis Fructus	*Quisqualis indica* L.	Combretaceae	518
132	烏　梅	Mume Fructus	*Prunus mume* Sieb. et Zucc.	Rosaceae	519
133	檳榔子	Arecae Semen	*Areca catechu* L.	Palmae	524
134	花　椒	Zanthoxyli Fructus	*Zanthoxylum bungeanum* Maxim.	Rutaceae	529
	山　椒	Zanthoxyli Fructus	*Zanthoxylum piperitum* DC.	Rutaceae	△
135	莪　朮	Zedoariae Rhizoma	*Curcuma zedoaria* Roscoe	Zingiberaceae	530
X-1	秦　皮	Fraxini Cortex	*Fraxinus rhynochophylla* Hance	Oleaceae	△
X-2	苦楝皮	Meliae Cortex	*Melia azedarach* L.	Meliaceae	△
X-3	菊　花	Chrysanthemi Flos	*Chrysanthemum indicum L.*	Compositae	535

△成分未表示

I. 成 分

I・全身性疾患

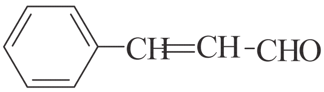
001 ～ 017

I - 1 ～ I - 7

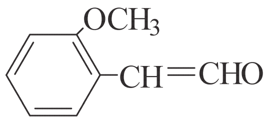
△：成分未表示

001-1. 桂皮 Cinnamomi Cortex

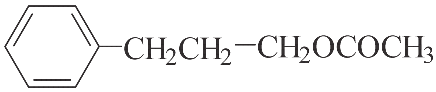
* *Cinnamomum cassia* Blume [Lauraceae]



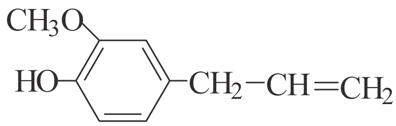
cinnamaldehyde



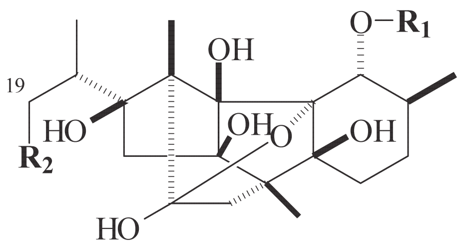
o−methoxycinnamaldehyde



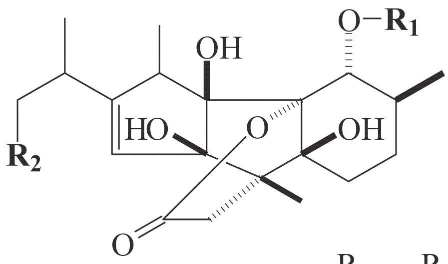
phenylpropylacetate



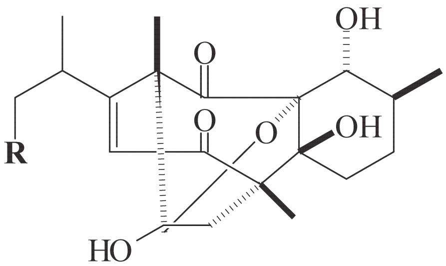
eugenol



	R_1	R_2
cinnzeylanine	Ac	H
cinnzeylanol	H	H
cinncassiol B	H	OH

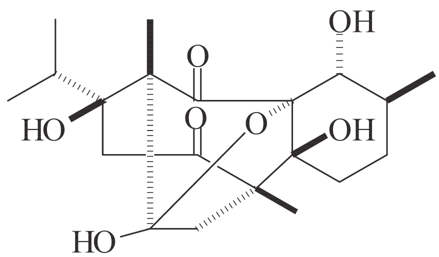


	R_1	R_2
anhydrocinnzeylanine	Ac	H
anhydrocinnzeylanol	H	H
cinncassiol A	H	OH

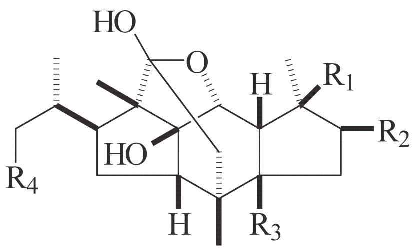


cinncassiol C_1 R=OH

cinncassiol C_2 R=H



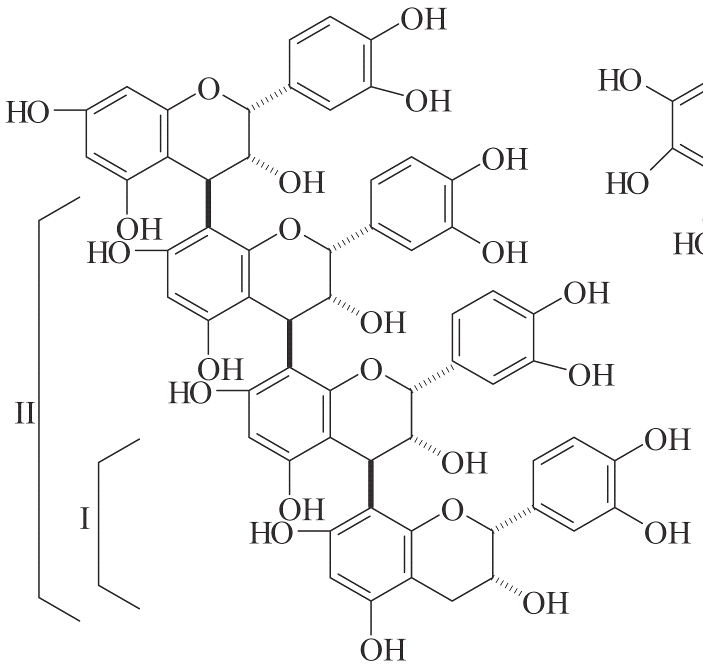
cinncassiol C_3



	R_1	R_2	R_3	R_4
cinncassiol D_1	OH	H	H	OH
cinncassiol D_2	OH	H	OH	OH
cinncassiol D_3	H	OH	OH	OH
cinncassiol D_4	H	OH	OH	H

001-2. 桂皮 Cinnamomi Cortex

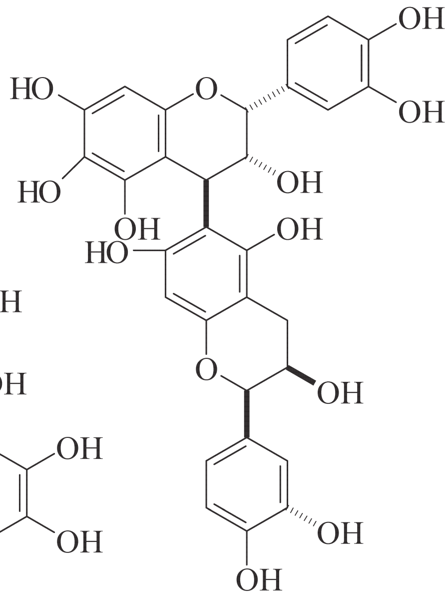
* *Cinnamomum cassia* Blume [Lauraceae]



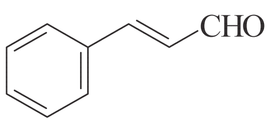
cinnamtannin I

I: procyanidin B-2

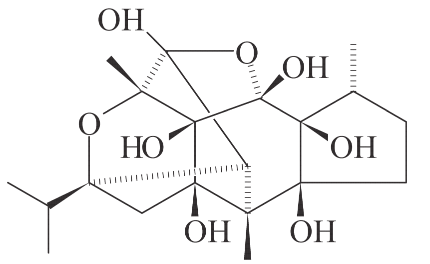
II: procyanidin C-1



procyanidin B-5



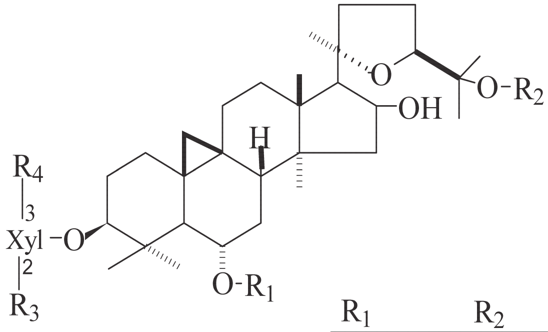
cinnamic aldehyde



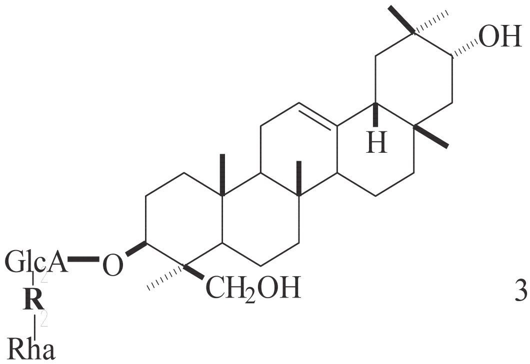
cinncassiol

003-1-1. 黃耆 Astragali Radix

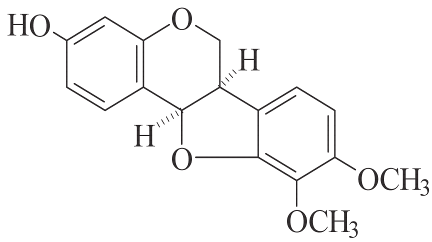
* *Astrgagalus mongholicus* Bunge
A. *membranaceus* Bunge [Leguminosae]



	R_1	R_2	R_3	R_4
astragaloside I	Glc	H	Ac	Ac
astragaloside II	Glc	H	Ac	H
astragaloside III	H	H	Glc	H
astragaloside IV	Glc	H	H	H
astragaloside V	H	Glc	Glc	H
astragaloside VI	Glc	H	Glc	H
astragaloside VII	Glc	Glc	H	H

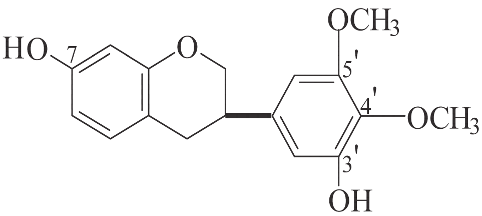


astragaloside VIII R = Xyl
soyasaponin I R = Gal

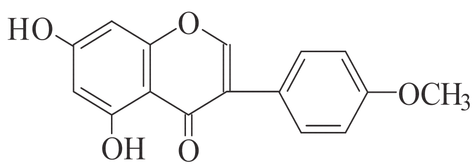


3-hydroxy-9,10-dimethoxy-pterocarpan

$H_2N-CH_2-CH_2-CH_2-COOH$
γ– aminobutylic acid



7, 3'-dihydroxy-4', 5'-dimethoxy-isoflavane
(=astraisoflavane)

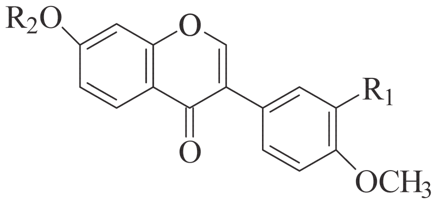


formononetin

003-1-2. 黃耆 Astragali Radix

* *Astragalus mongholicus* Bunge [Leguminosae]

** T. Nakamura, A. Hashimoto, H. Nishi, Y. Kokusenya: *YAKUGAKU ZASSHI,* **119** (5), 391-400 (1999)



		R_1	R_2
1	calycosin-7-*O*-β–D-glucopyranoside	OH	Glc
2	ononin	H	Glc
3	calycosin	OH	H
4	formononetin	H	H

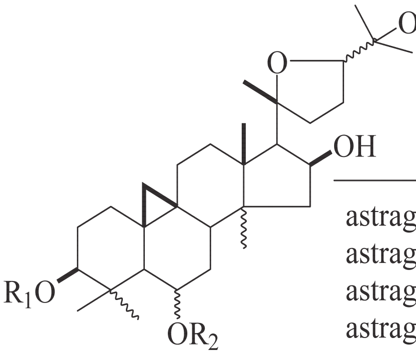
Fig. 1. Chemical Structures of Four Isoflavonoids from Astragali Radix

* *Astragalus membranaceus* Bunge
calycosin
(7, 3'-dihydroxy-4'-methoxyisoflavone)

003-2-1. 黄耆 Astragali Radix

* *Astragalus mongholicus* Bumge [Leguminosae]

** M.Shiba, S. Terabayashi, M. Okada, X-L. Bai, and X-Y Ge : *J. Jpn. Bot.*,**78** (4), 226-232 (2003)



		R_1	R_2
astragaloside I	(**1**)	Xyl(2,3-diAx)	Glc
astragaloside II	(**2**)	Xyl(2-Ac)	Glc
astragaloside III	(**3**)	Glc-Xyl	H
astragaloside IV[42)]	(**4**)	Xyl(2-Ac)	Glc

Glc: D-glucoxe
Xyl: D-xylose

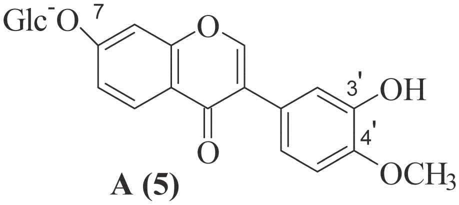
Fig. 1. Four astragaloside compounds from *Astragalus mongholicus* Bunge

*42): Astragaside IV : *Astragalus* Extract Alleviates Nerve Injury after Cerebral Ischemia by Improving Energy Metabolism and Inhibiting Apoptosis: Xiao-Ping huang, Chang-Qing Deng et al : *Biol. Pharm. Bull.* **35**(4) 449-454 (2012)

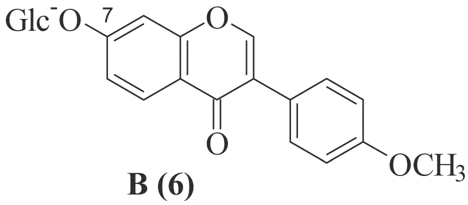
003-2-2. 黃耆 Astragali Radix (Continued 003-2-1)

* *Astragalus mongholicus* Bunge [Leguminosae]

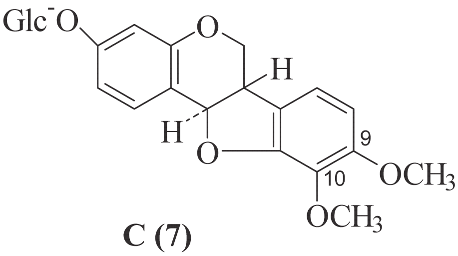
** M. Shiba et al: *Journal of Japanese Botany*, **78**(4), 226-232 (2003)



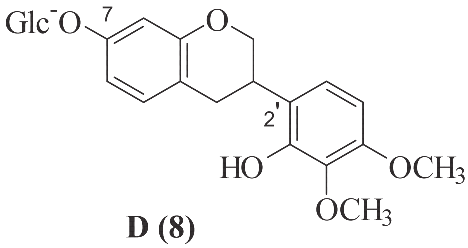
A (5)



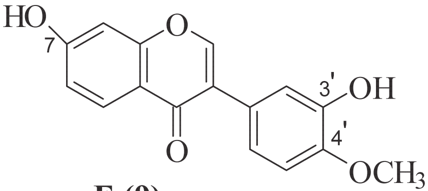
B (6)



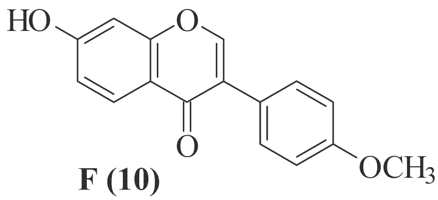
C (7)



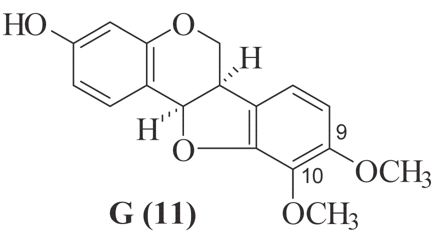
D (8)



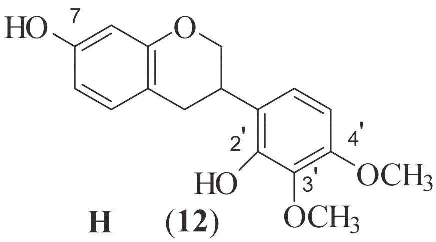
E (9)



F (10)



G (11)



H (12)

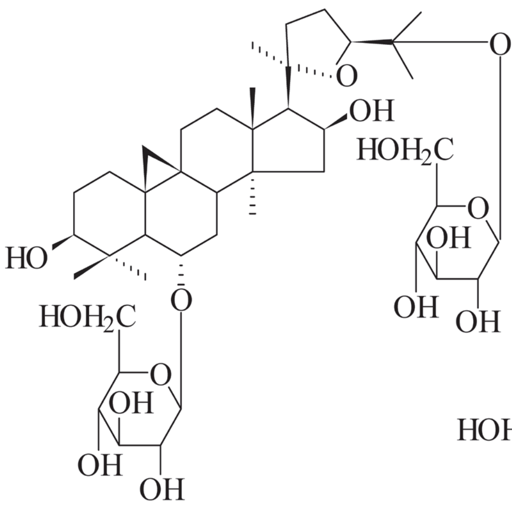
Fig. 2. The eight flavonoid compounds from *Astragalus mongholicus*

* **A**: 7.3'-dihydroxy-4'-methoxyisoflavone 7-***O***-β–D-glucoside (**5**).
B: fornomonetin 7-***O***-β–D-glucoside (**6**).
C: (6aR, 11aR)-3-hydroxy-9,10-dimethoxypterocarpan 3-***O***-β–D-glucoside (**7**).
D: 7.2'-dihydroxy-3',4'-dimethoxyisoflavan 7-***O***-β–D-glucoside (**8**).
E: 7,3'-dihydroxy-4'-methoxyisoflavone (**9**).
F: formononetin (**10**).
G: (6a*R*, 11a*R*)-3-hydroxy-9,10-dimethoxypterocarpan (**11**).
H: 7.2'-dihydroxy-3',4'-dimethoxyisoflavan (**12**).

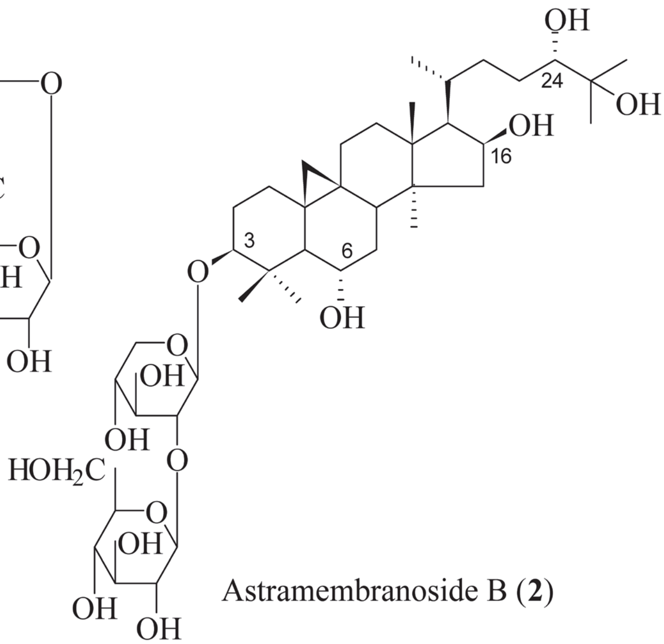
003-3-1. 黃耆 Astragali Radix

* Two New Cycloartane Saponins from the Roots of *Astragalus membranaceus* (Fisch.) Bge. [Leguminosae]

** Ju Sun Kim, Min-Hye Yean, Eun-Ju Lee, Hye Sil Jung, Joo Young Lee, Yoon Jung Kim, and Sam Sik Kang: *Chem. Pharm. Bull.* **56**(1), 105-108 (2008)



Astramembranoside A (**1**)



Astramembranoside B (**2**)

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* New Cycloartane -type triterpenoid saponins:

(**1**): cycloastragenol 6,25-di ***O*-**β–D-glucopyranoside

(**2**): cyclocanthogenin 3-***O*-**β–D-glucopyranosyl (1-2)-β–D-xylopyranoside

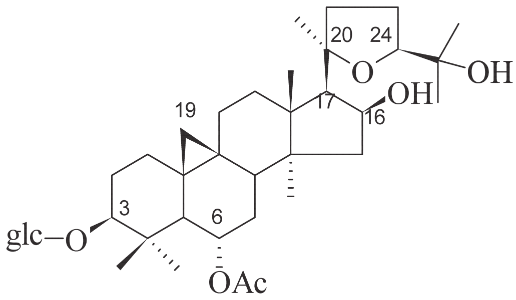
** Other: 12 known saponins:

cycloastragenol 3-***O*-**xyloside; agroastragalosides I and II; brachyoside B and azukisaponin V methyl ester.

003-4-1. 黃耆葉 From the Leaves of *Astragalus membranaceus* Bge. [Leguminosae]

*H. Kuang, N. Zhang, Z. Tian, Y. Okada, T. Okuyama :
Natural Medicines, **51**(4), 358-360 (1997)

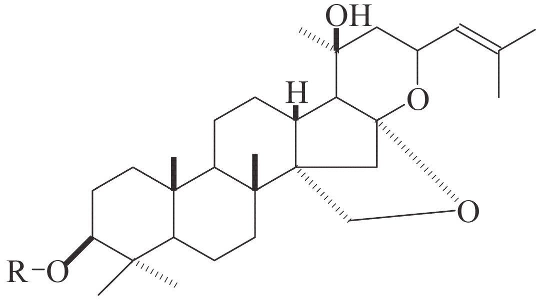
**Triterpenoidal Glycoside:



huangqiyenin D
(=3-*O*-β–D-glucopyranosyl-6-acetyl-cycloastragenol)

004-1. 大枣 Zizyphi Fructus

* *Zizyphus vulgaris* Lamarck [Rhamnaceae]

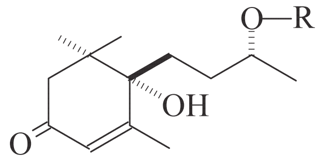


zizyphus saponin I R=Ara $\overset{3}{-}$Glc ($\overset{2}{|}$ 6-deoxy-α-L-talose)

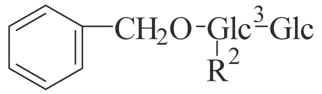
zizyphus saponon II R = Ara $\overset{3}{-}$Glc ($\overset{2}{|}$ Rha)

zizyphus saponin III R = Ara $\overset{2\ 2}{—}$Glc— Xyl ($\overset{2}{|}$ 6-deoxy-α-L-talose)

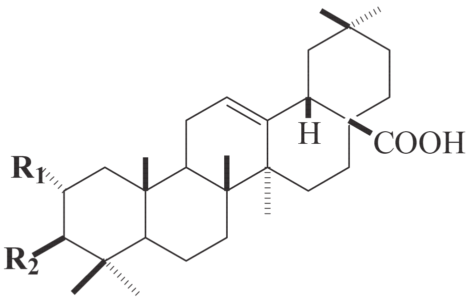
jujuboside R = Ara $\overset{3\quad 2}{—}$Glc —Xyl ($\overset{2}{|}$ Rha)



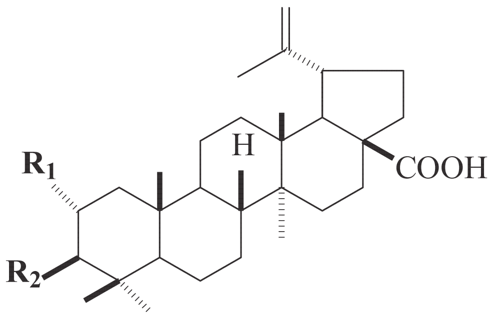
vomifoliol	R = H
roseoside	R = Glc
zizyvoside I	R = Glc $\overset{2}{—}$ Rha
zizyvoside II	R = Glc $\overset{2}{—}$ Rha ($\overset{3}{|}$ Glc)



zizybeoside I	R =H
zizybeoside II	R=Glc



	R_1	R_2
oleanonic acid	H	=O
oleanolic acid	H	OH
maslinic acid	OH	OH



	R_1	R_2
betulonic acid	H	=O
betulinic acid	H	OH
alphitolic acid	OH	OH

004-2-1. 大棗 Zizyphi Fructus

* *Ziziphus jujuba* Miller [Rhamnaceae]

** Y. Tanaka, S. Sanada : *Syoyakugaku Zasshi* **45**(2), 148-152 (1991)

*** Triterpene : betulin, betulinic acid,
Flavonoid : spinosin, 6'''-sinapoylspinosin, 6'''-feruloylspinosin, *p*-coumaroylspinosin

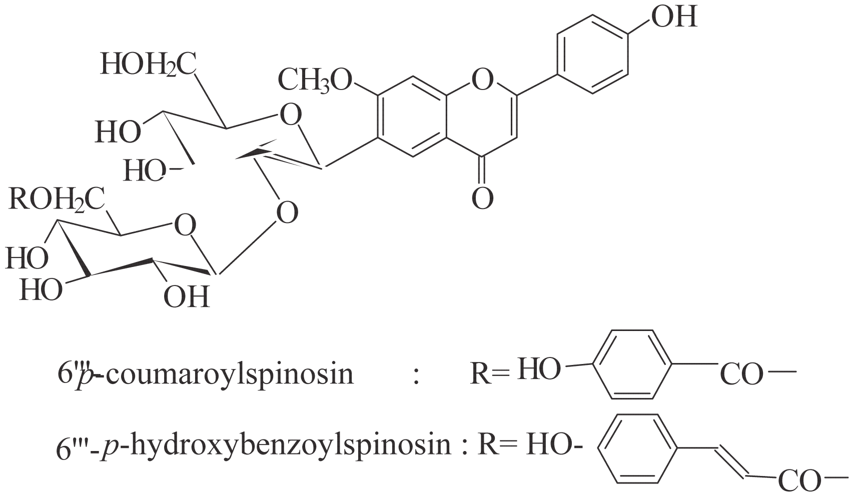
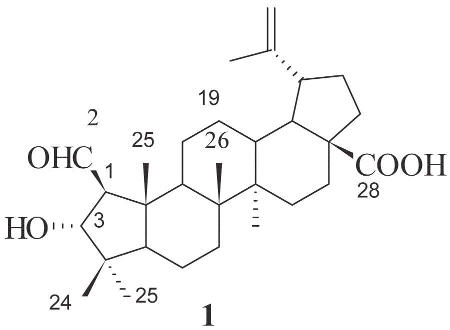


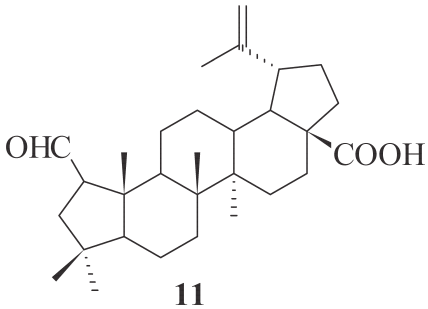
Fig. 1. Chemical structures of compounds

004-2-2. 大棗 Zizyphi Fructus

* Anti-complementary Activity of Triterpenoid from Fruits of *Zizyphus jujuba* Mill. [Rhamnaceae]
S-M Lee, J-G Park, Y-H Lee, C-G Lee, B-S Min, J-H Kim, and H-K Lee,
Biol. Pharm. Bull. **27**(11), 1883-1886 (2004)



1



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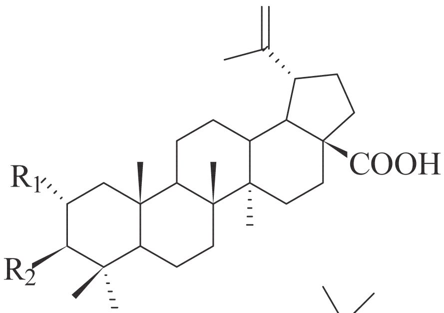
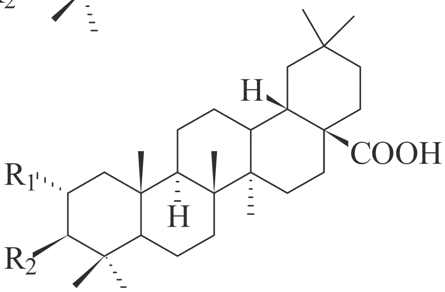


2: R_1=OH R_2=OH
3: R_1=OH R_2=*cis*-*p*-coumaroyl
4: R_1=OH R_2=*trans*-*p*-coumaroyl
7: R_1=H R_2=OH
9: R_1=H R_2 =O



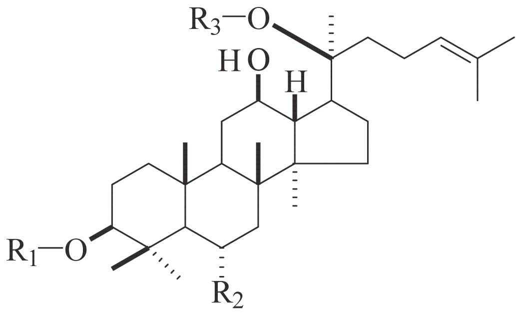
5: R_1=OH R_2=*cis*-*p*-coumaroyl
6: R_1=OH R_2=*trans*-*p*-coumaroyl
8: R_1=H R_2=OH
10: R_1=H R_2 =O

Fig. 1. Chemical structures of compounds

* **1**: colubric acid	**7**: betunilic acid
2: alphitolic acid	**8**: oleanolic acid
3: 3-***O***-*cis*-*p*-coumaroyl alphitolic acid	**9**: betulonic acid
4: 3-***O***-*trans*-*p*-coumaroyl alphitolic acid	**10**: oleanonic acid
5: 3-***O***-*cis*-*p*-coumaroyl maslinic acid	**11**: zizyberenalic acid
6: 3-***O***-*trans*-*p*-coumaroyl maslinic acid	

005-1-1. 人參 Ginseng Radix (Alba)

**Panax ginseng* C. A. Meyer [Araliaceae]



	R_1	R_2	R_3
20*S*-protopanaxadiol	H	H	H
20*S*-protopanaxatriol	H	OH	H
ginsenoside-Ra1	Glc---Glc-	H	Xyl---Ara (*p*)---Glc-
ginsenoside-Ra2	Glc---Glc-	H	Xyl---Ara (*f*)---Glc-
ginsenoside-Rb1 (diol)	Glc---Glc-	H	Glc---Glc-
ginsenoside-Rb2	Glc---Glc-	H	Ara (*p*)-- Glc-
ginsenoside-Rb3	Glc---Glc-	H	Xyl--- Glc-
ginsenoside-Rc	Glc---Glc-	H	Ara (*f*)---Glc-
ginsenoside-Rd	Glc---Glc-	H	Glc-
ginsenoside-Re	H	Rha--- Glc-O-	Glc-
ginsenoside-Rf	H	Glc--- Glc-O-	H
ginsenoside-Rg1 (triol)	H	Glc-O-	Glc-
ginsenoside-Rg2	H	Rha---Glc-O-	H
20-glucoginsenoside-R1	H	Glc--- Glc-O-	Glc-
ginsenoside-Rh1	H	Glc-O-	H
ginsenoside-Rp1	Glc---Glc	Glc	

C_7H_{15}—CH=CH—CH_2—$(C\equiv C)_2$—CH(OH)—CH=CH_2

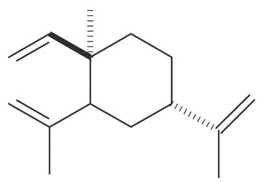
panaxynol

C_7H_{15}—CH—CH—CH_2—$(C\equiv C)_2$—CH(OH)—CH=CH_2 (CH—CH bridged by O)

panaxydol

C_8H_{17}—CH(OH)—CH_2—$(C\equiv C)_2$—CH(OH)—CH=CH_2

heptadeca-1-en-4, 6-diyn-3, 9-diol



β–elemene

* Bioactive ginsenosides and PAs (falcalinol and panaxydol) identified and quantified in the roots of American ginseng (*Panax quinquefolium*). refer : *J Nat Med,* **63** 159 (2009).

005-1-2. 人參 Ginseng Radix

* *Panax ginseng* C. A. Meyer [Araliaceae]

** Ki Sung Kang et al : *Biol. Pharm. Bull.* **30**(10), 1975-1978 (2007)

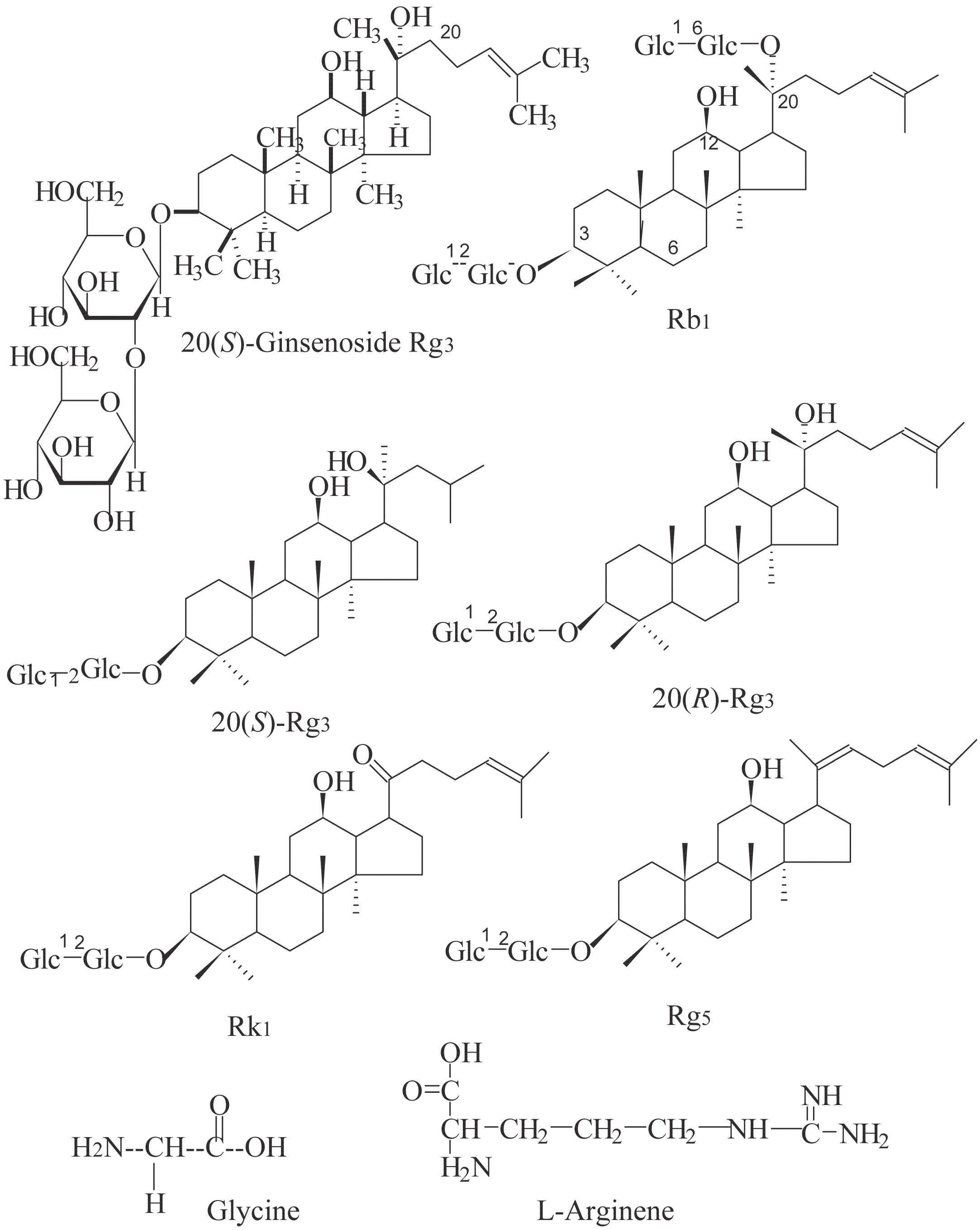


Fig. 1. Structure of Ginsenosides and Amino Acids

005-1-3. 人參 Ginseng Radix

* *Panax ginseng* C. A. Meyer [Araliaceae]

** Jun-Ho Lee, Sun-Hye Choi, Byung-Hwan Lee, In-Soo Yoon, Tae-Jun Shin, Mi Kyung Pyo, Sang-Mok Lee, Hyewhon Rhim, Myung Hwan Park, Tae Yoon Park, and Seung-Yeol Nah: *Biol. Pharm. Bull.* **31**(3), 480-486 (2008)

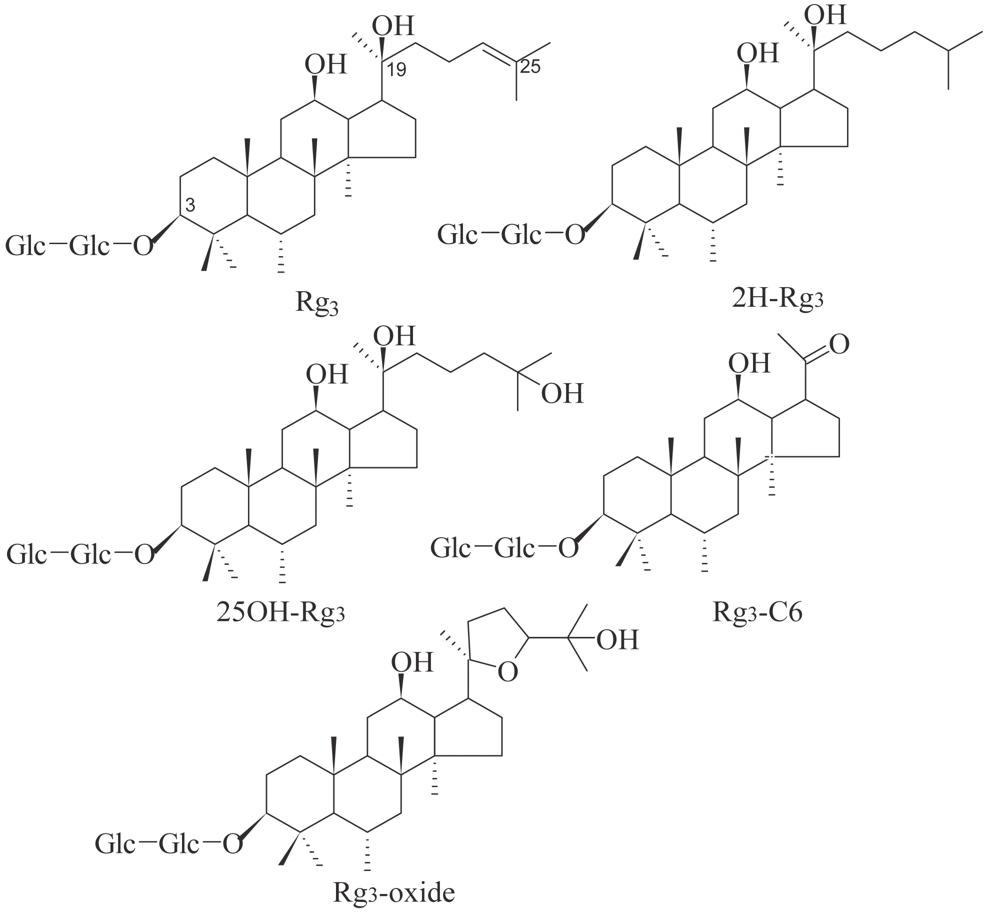


Fig. 1. Chemical Structures of Rg3 and Rg3 Derivatives

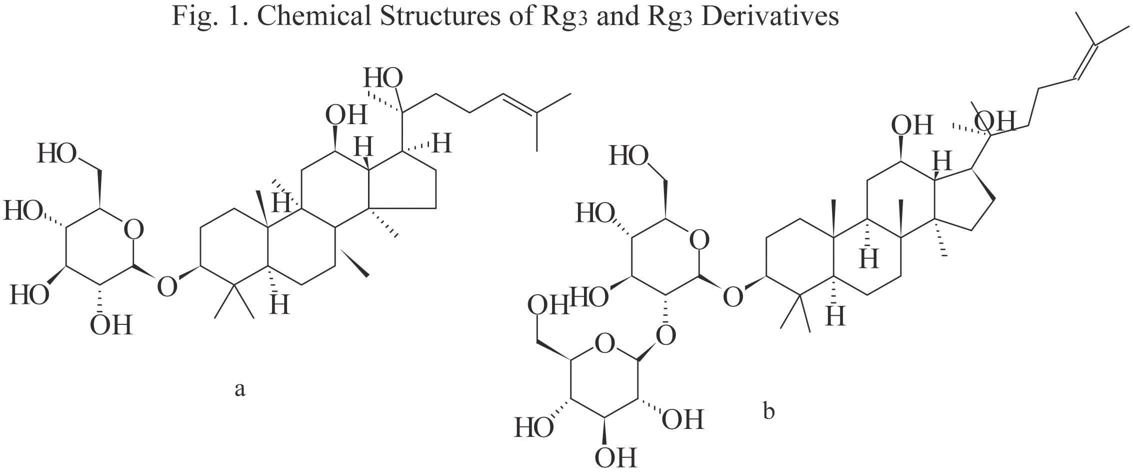
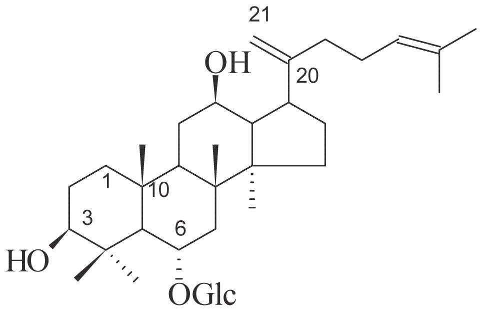


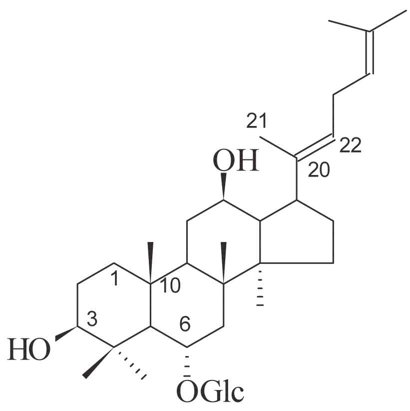
Fig. 2. Chemical structure of 20(*S*)-GRh2(a) and GRg3(b)72).

005-1-4. 人參 Ginseng Radix

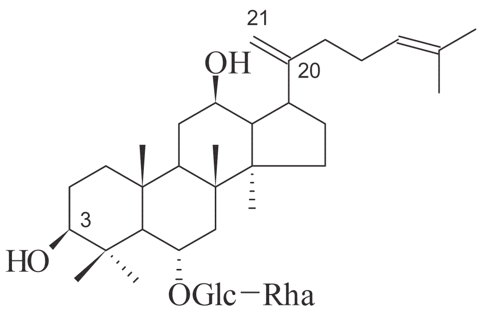
* *Panax ginseng* C. A. Meyer [Araliaceae]
** Anti-complementary Ginsenosides Isolated from Processed Ginseng
*** Jin Gyun Lee, Seung Hoon Baek, Yong Yook Lee, Seo Young Park, and Jeong Hill Park: *Biol. Pharm. Bull.* **34**(6) 898-900 (2011)



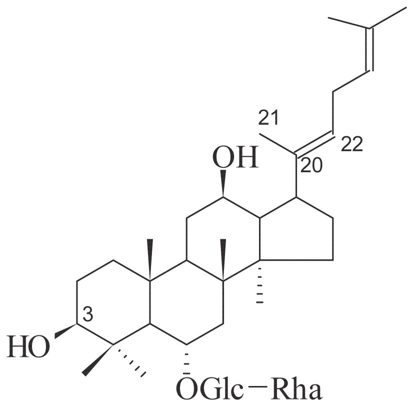
Ginsenoside Rk_3



Ginsenoside Rh_4



Ginsenoside Rg_6



Ginsenoside F_4

Fig. 1. Chemical Structures of Ginsenosides Rk_3, Rh_4, Rg_6, and F_4

005-2-1. 人參花 Ginseng Flos

* Structures of New Dammarane-Type Triterpene Diglycosides with Hydroperoxide Group from Flower Buds of *Panax ginseng*:

** Masayuki Yoshikawa, Sachiko Sugimoto, Seikou Nakamura, and Hisashi Matsuda: *Chem. Pharm. Bull.,* **55**(4), 571-576 (2007)

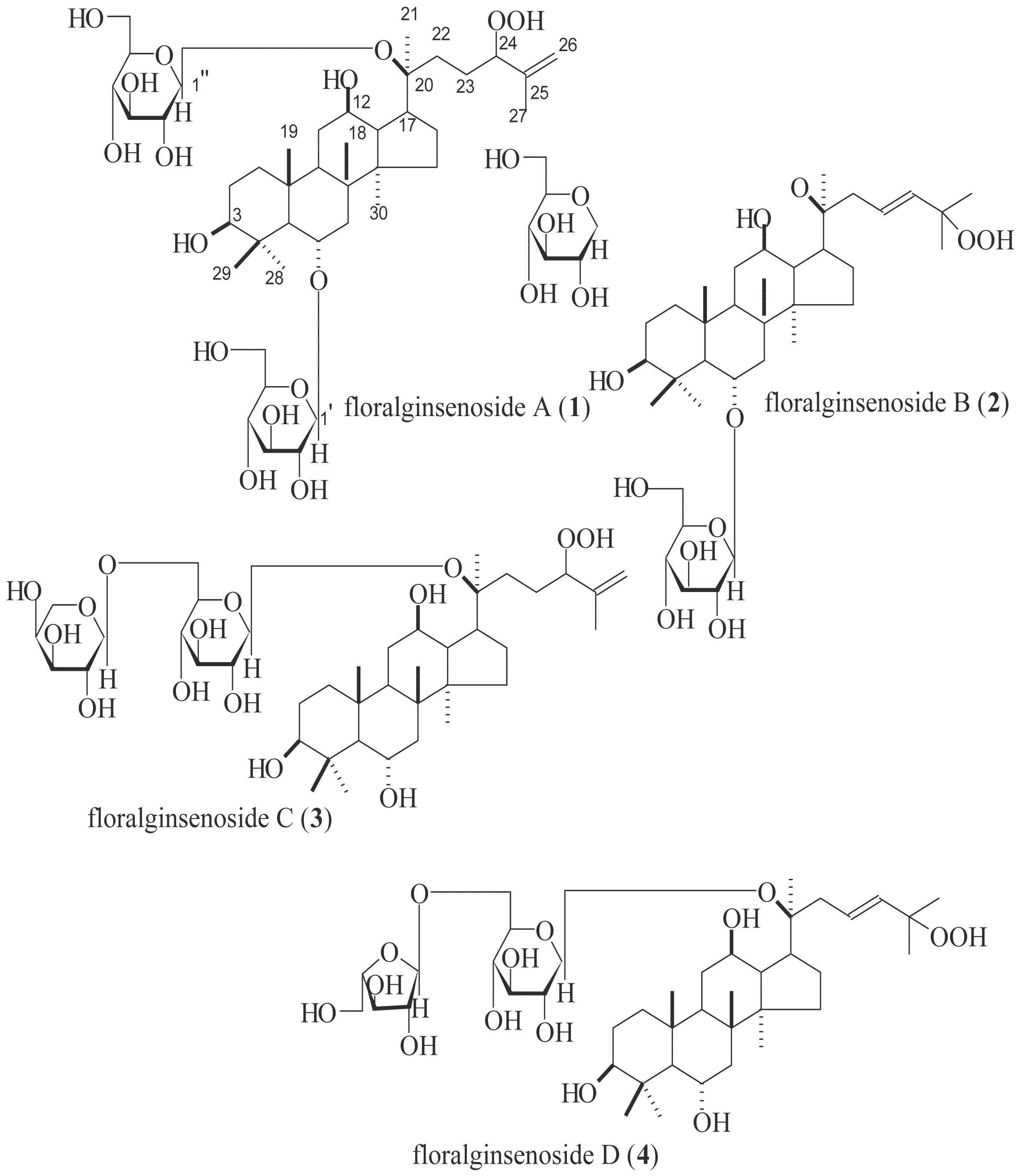
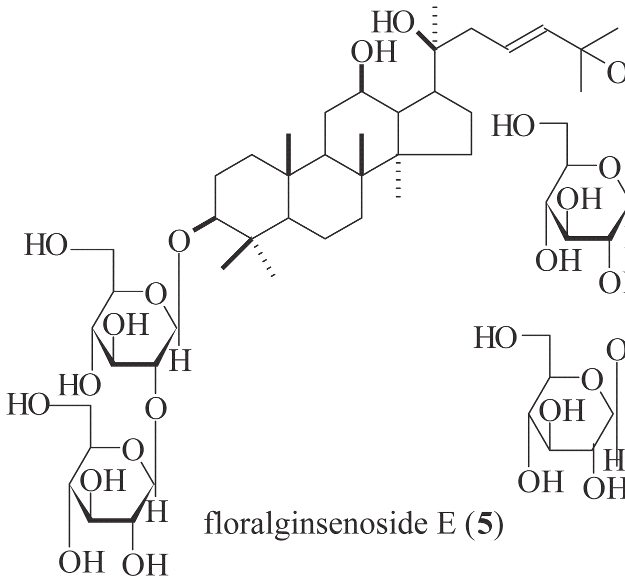


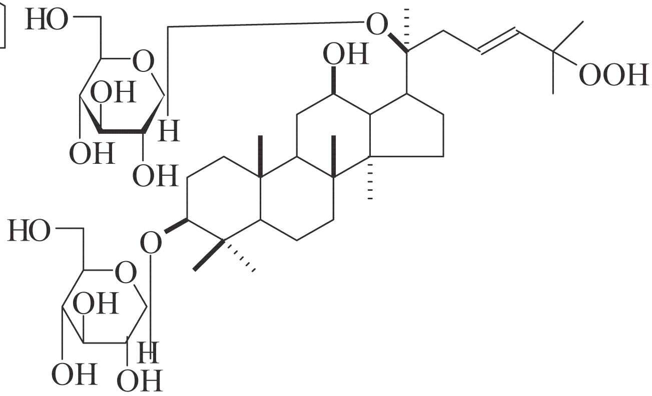
Chart 1. Structures of New Floralginsenosides (**1**--**4**) from the Flower Buds of *Panax ginseng*

005-2-2. 人參花 Ginseng Flos

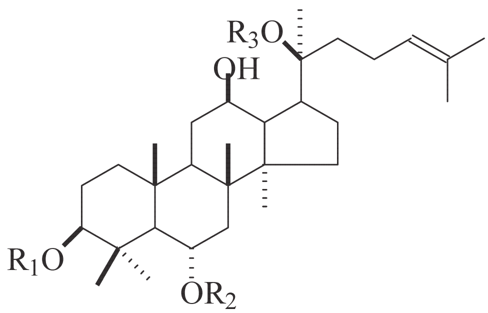
* (Continued 005-2-1)

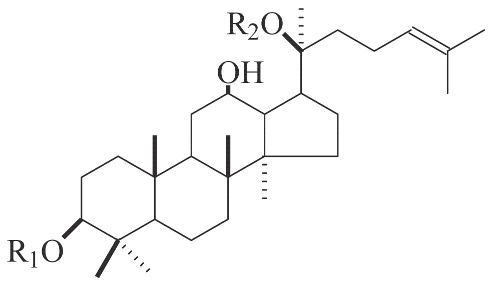


floralginsenoside E (**5**)



floralginsenoside F (**6**)





	R_1	R_2	R_3
ginsenoside-F$_1$ (**7**):	H	H	Glc
ginsenoside-F$_3$ (**8**):	H	H	Glc^{6}--^{1}Ara(p)
ginsenoside-F$_5$ (**9**):	H	H	Glc^{6}--^{1}Ara(f)
ginsenoside Rg$_1$ (**10**):	H	Glc	Glc
ginsenoside Rg$_2$ (**11**):	H	Glc^{2}--^{1}Rha	H

gypenoside XVIII (**12**):
R_1=Glc , R_2=Glc^{6}---^{1}Glc

pseudo ginsenoside-RC1 (**13**):
R_1=Glc^{2}---^{1}Glc--^{6}Ac, R_2=Glc

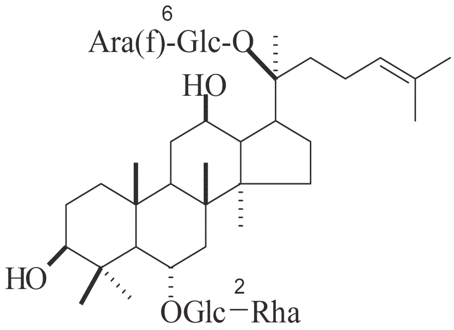
Chart 2. Structures of New Floralginsenosides (**5**--**6**) and Known Saponins (**7**--**13**) from the Flower Buds of *Panax ginseng*

005-2-3. 人參花 Ginseng Flos

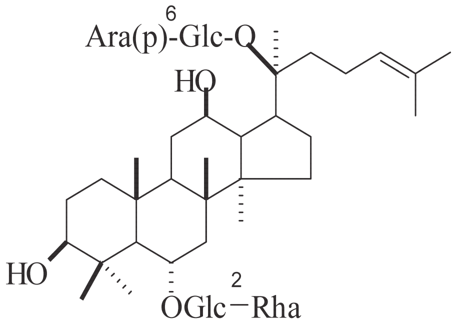
* *Panax ginseng* C. A. Meyer [Araliaceae]

** New Dammarane-Type Triterpene Tetraglycosides and Gastroprotective Principles from Flower Buds of *Panax ginseng*

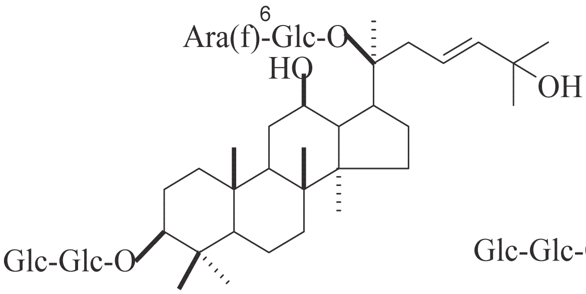
*** Masayuki Yoshikawa, Sachiko Sugimoto, Seikou Nakamura, Hayaka Sakumae, and Hisashi Matsuda: *Chem. Pharm. Bull.* **55** (7), 1034-1038 (2007)



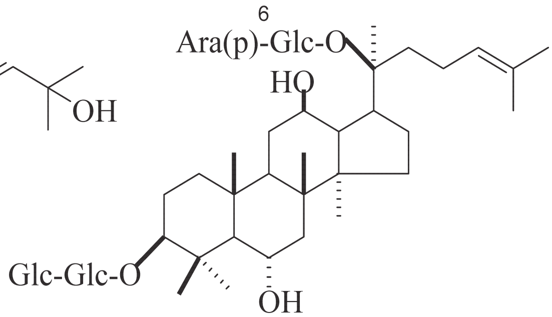
floralginsenoside M (**1**)



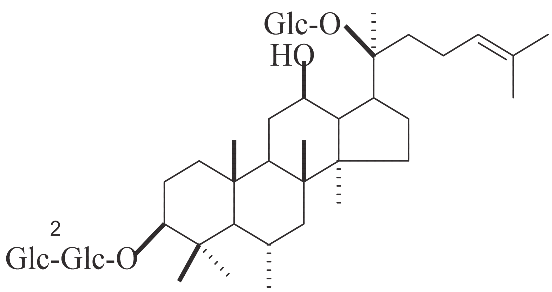
floralginsenoside B (**2**)



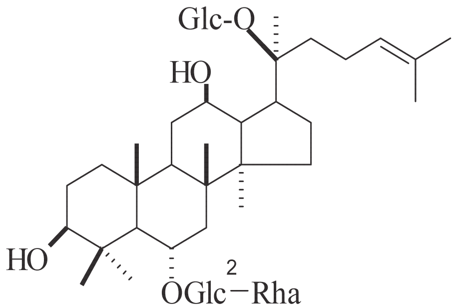
floralginsenoside O (**3**)



floralginsenoside P (**4**)



ginsenoside Rd (5)

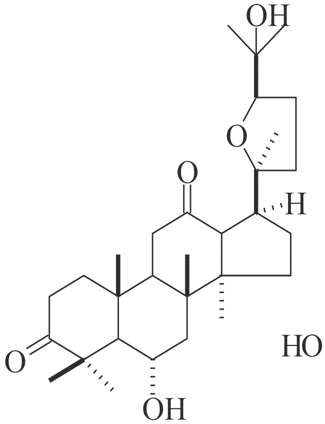


ginsenoside Re (6)

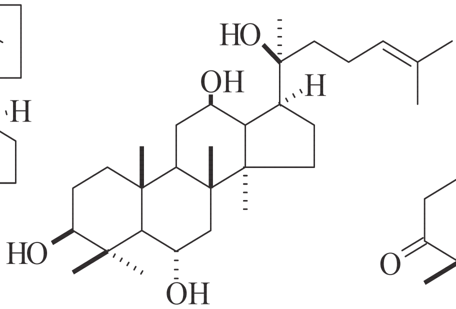
Chart 1. Structures of Floralginsenosides(**1**-**4**) and Ginsenosides Rd (**5**,**6**) from Flower-Buds of *Panax ginseng*

005-3-1. 人参子 Chemical Constituents from Seeds of *Panax ginseng* Structure of New Dammarane-Type Triterpene Ketone, Panaxadione

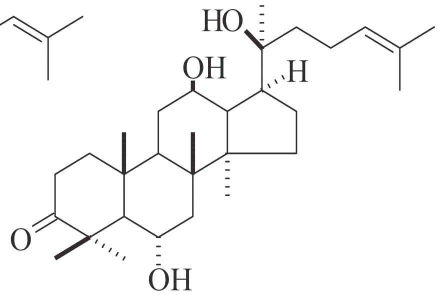
* Sachiko Sugimoto, Seikou Nakamura, Hisashi Matsuda, Niichiro Kitagawa, and Masayuki Yoshikawa: *Chem. Pharm. Bull.* **57**(3) 283-287 (2009)



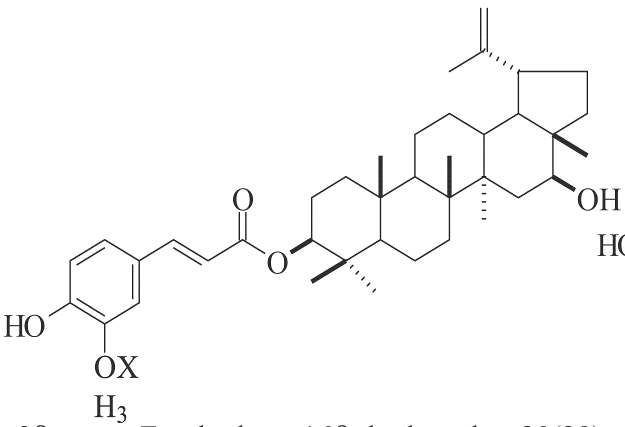
panaxadione (1)



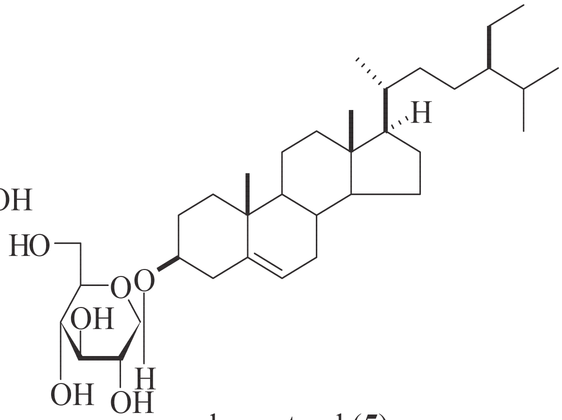
20(*S*)-protopanaxatriol (**2**)



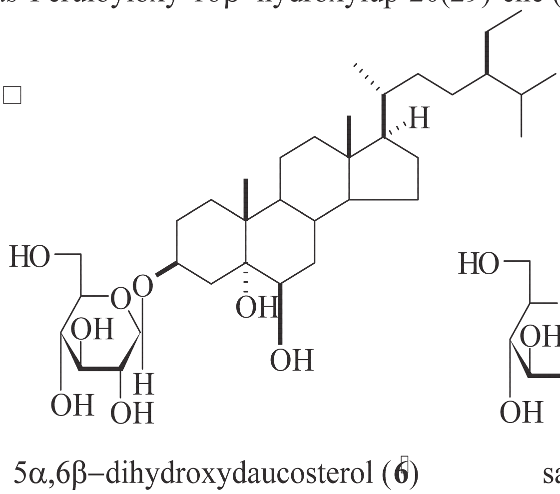
3-keto-20(*S*)-protopanaxatriol (**3**)



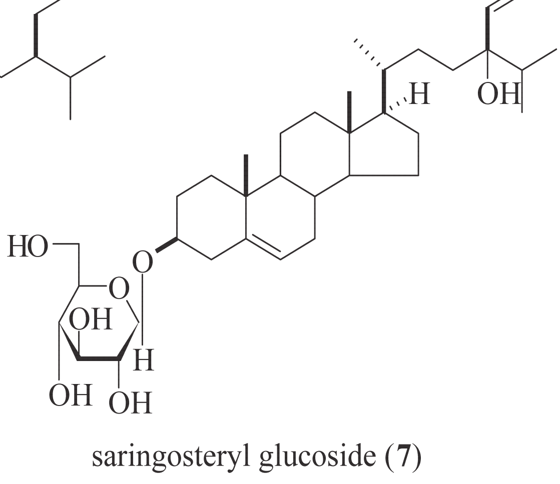
3β−*trans*-Feruloyloxy-16β−hydroxylup-20(29)-ene (**4**)



daucosterol (**5**)



5α,6β−dihydroxydaucosterol (**6**)

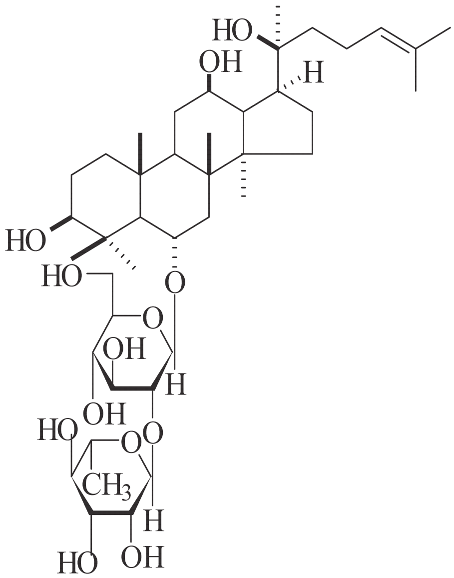


saringosteryl glucoside (**7**)

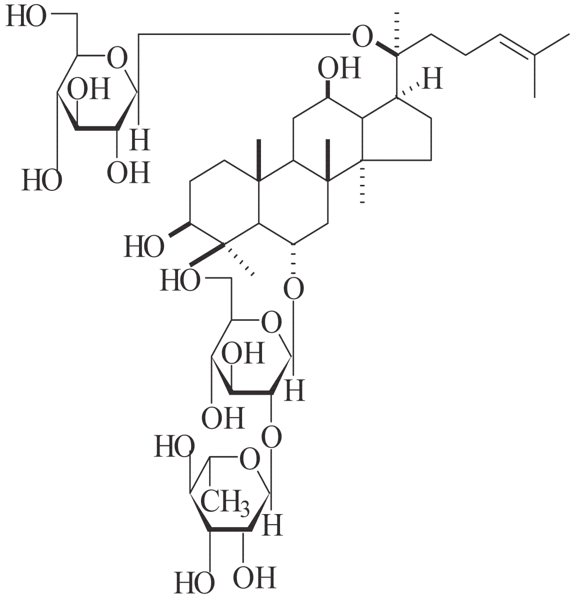
005-3-2. 人參子 Chemical Constituents from Seeds of *Panax:ginseng* Structure of New Dammarane-Type Triterpene Ketone, Panaxadione

* Sachiko Sugimoto, Seikou Nakamura, Hisashi Matsuda, Niichiro Kitagawa, and Masayuki Yoshikawa: *Chem. Pharm. Bull.* **57**(3), 283-287 (2009)

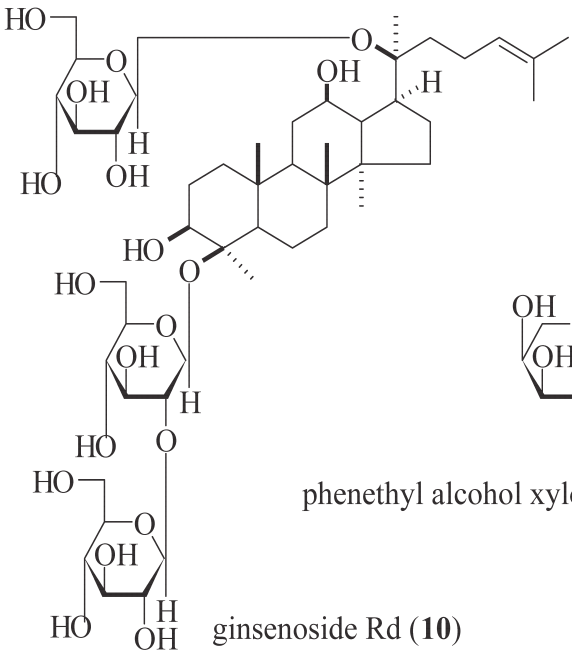
** Continued 005-3-1



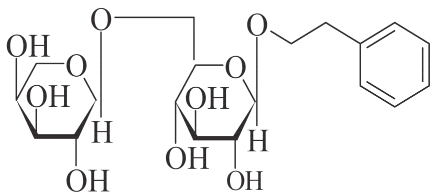
ginsenoside Rg2 (**8**)



ginsenoside Re (**9**)



ginsenoside Rd (**10**)

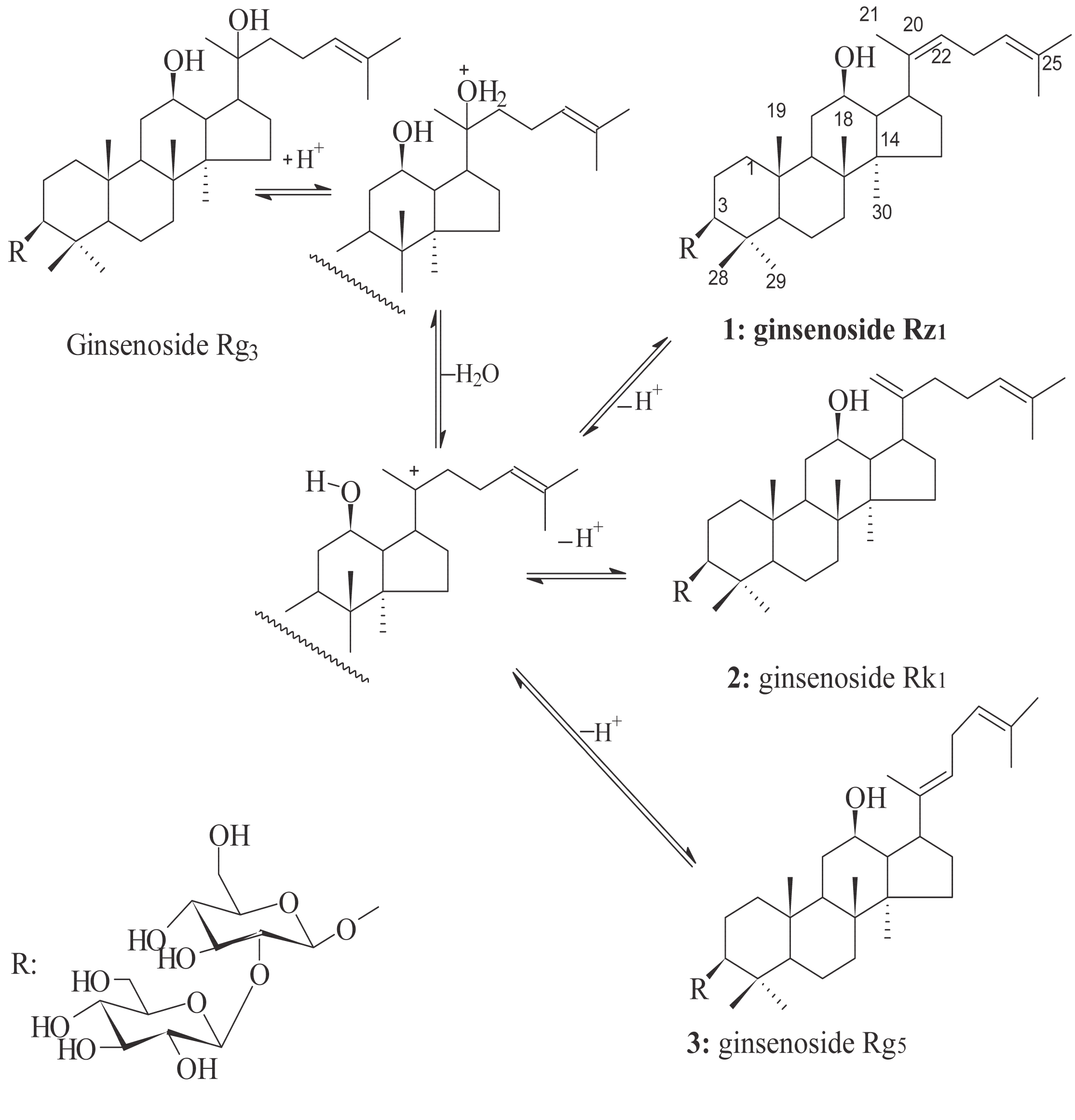


phenethyl alcohol xylopyranosyl (**1**--**6**) glucopyranoside (**11**)

Chart 1. Isolated Constituents from the Seeds of *Panax ginseng* C. A. Meyer [Araliaceae]

005-4-1. 紅參 Ginseng Radix Rubra

* *Panax ginseng* C. A. Meyer [Araliaceae]
** Ginsenosides from Heat Processed Ginseng
*** Sang Myung Lee, Hyun Ju Shon, Chung-Sig Choi, Tran Manh Hung, Byung Sun Min, and KiHwan Bae: *Chem. Pharm. Bull.* **57**(1), 92-94 (2009)



Ginsenoside Rg_3

1: ginsenoside Rz1

2: ginsenoside Rk1

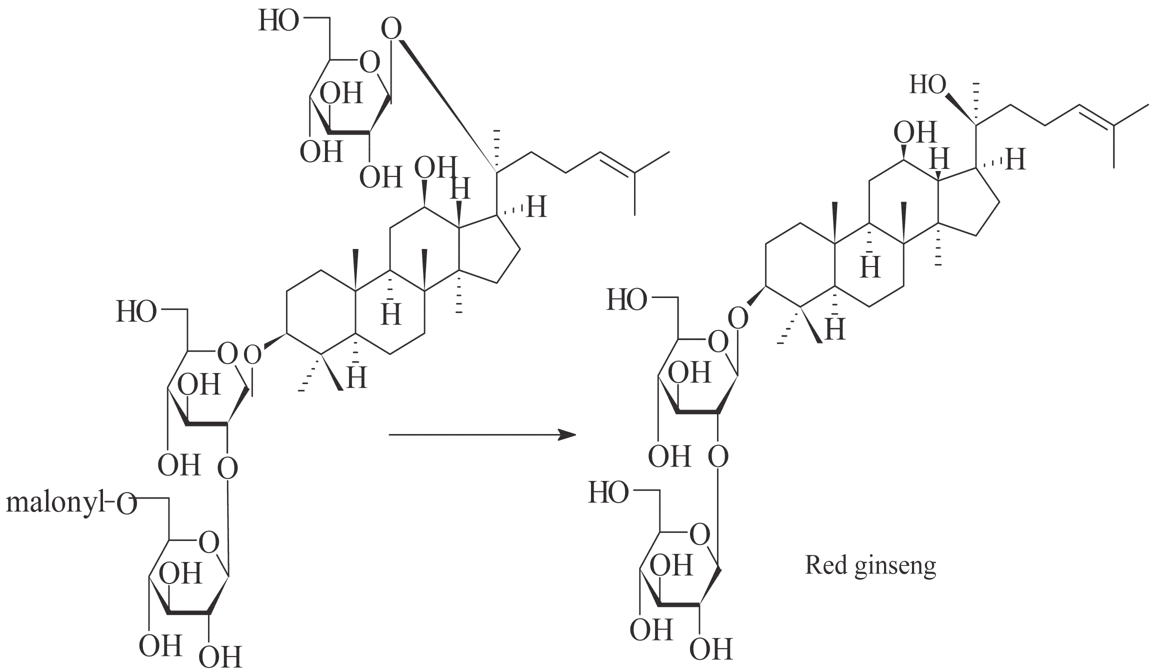
3: ginsenoside Rg5

Fig. 1. Ginsenoside Rz1 (**1**) and Other Two Conversion Products (**2, 3**) of Ginsenoside Rg_3

* **1: Ginsenoside Rz1**=
(*Z*)-12β–hydroxy-dammara-20 (22),24-dien-3β–yl ***O***-β–D-glucopyranosyl-(1-2)-β–D-glucopyranoside
** Ginsenosides Rz1, Rk1, and Rg5 were present in the ratios of 1:2:6

005-4-2. 紅參 Ginseng Radix (Alba) and Ginseng Radix Rubra

Panax ginseng C. A. Meyer [Araliaceae]



malonyl-ginsenoside Rd   ginsenoside Rg$_3$

* malonyl:-$COCH_2CHOOH$

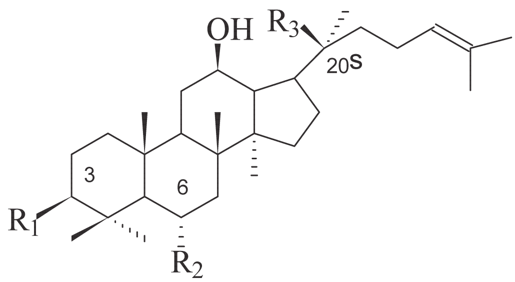
** white ginseng:
malonyl-ginsenosides Rb$_1$, Rb$_2$,Rc, Rd

* red ginseng:
ginsenoside Rh$_1$, Rg$_3$, Rs

panaxynol ⟶ panaxytriol

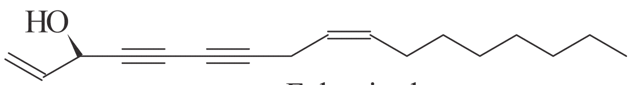
005-5-1. 廣東人參 American ginseng (*Panax quinquefolium* L.)[Araliaceae]

* Lars P. Christensen, Martin Jensen:
J Nat Med **63**(2) 159-168 (2009)

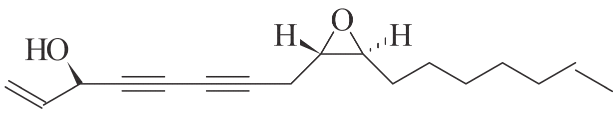


Ginsenoside	R1	R2	R3
Rb1	O-Glc(2-1)Glc	H	O-Glc(6-1)Glc
Rb2	O-Glc(2-1)Glc	H	O-Glc(6-1)Ara(*p*)
Rb3	O-Glc(2-1)Glc	H	O-Glc(6-1)Xyl
Rc	O-Glc(2-1)Glc	H	O-Glc(6-1)Ara(*f*)
Rd	O-Glc(2-1)Glc	H	O-Glc
Re	OH	O-Glc(2-1)Rha	O-Glc
Rg1	OH	O-Glc	O-Glc

* Glc=β−D-glucose; Ara(*p*)=α−arabinopyranose; Ara(*f*)=α−L-arabinofuranose; Rha=α−L-rhamnose; Xyl=β−D-xylopyranosyl



Falcarinol

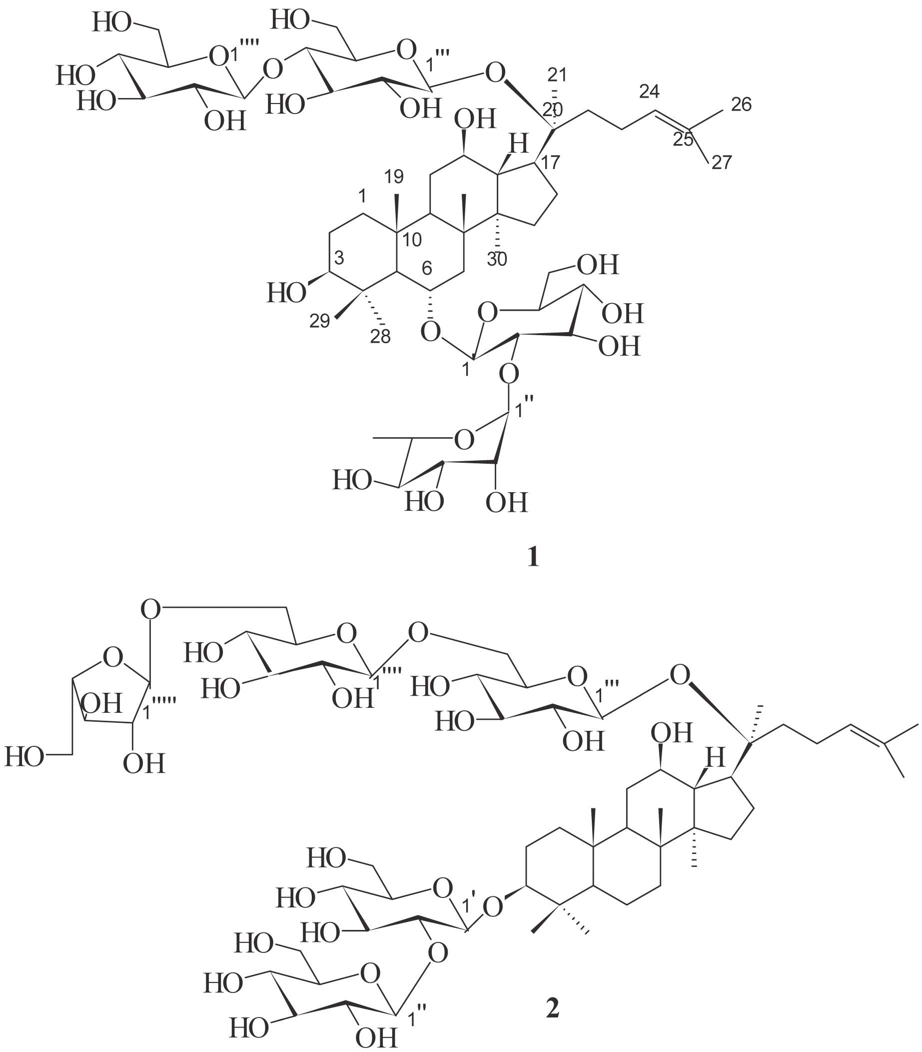


Panaxydol

Fig. 1. Chemical structures of American ginseng (*Panax quinquifolium*)

005-5-2. 廣東人參 American Ginseng (*Panax quinquefolium*L.) [Araliaceae]

* Nguyen Huu Tung and Yukihiro Shoyama:
*Chem. Pharm. Bull.***60**(10) 1329-1333(2012)



1

2

Fig. 1. The Structures of Quinquenoside Ja (**1**) and Quinquenoside Jb(**2**)

* Ginsenosides, the major active compound of American ginseng (*Panax quinquefolium* L.), led to the isolation of two new minor dammarane-type saponin, named quinquenosides Ja (**1**) and Jb (**2**).
Their structures were eluciated to be 6-*O*-[α-L-rhamnopyranosyl(1-2)-β–D-glucopyranosyl-20-*O*-[β–D-glucopyranosyl(1-4)-β–D-glucopyranoayl]-3β,6α,12β,20β–tetrahydroxydammar-24-ene (**1**) and 3-*O*-[β–D-glucopyranosyl(1-2)-β–D-glucopyranosyl]-20-*O*-{[α–L-arabino-furanosyl](1-6)-β–D-glucopyranosyl(1-6)-β–D-glucopyranosyl}-3β,12β,20β–trihydroxy-dammar-24-ene (**2**) .

005-6-1. 人參葉 wo New Dammarane-Type Saponins from the Leaves of *Panax ginseng* C. A. Meyer [Araliaceae]

* Nguyen Huu Tung, Gyu Yong Song, Yong Jin Park, and Young Ho Kim: *Chem. Pharm. Bull.* **57**(12) 1412-1414 (2009)

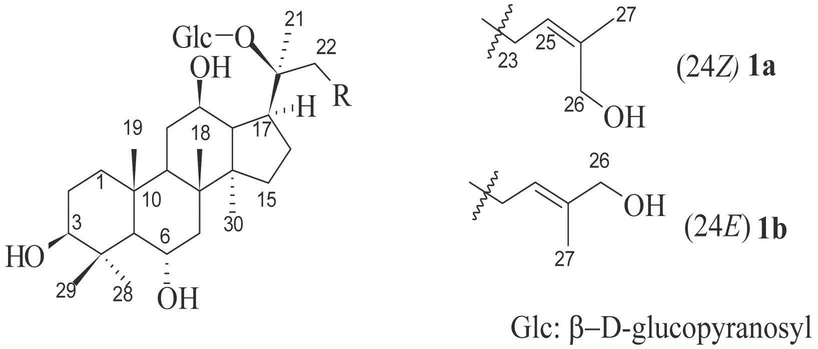


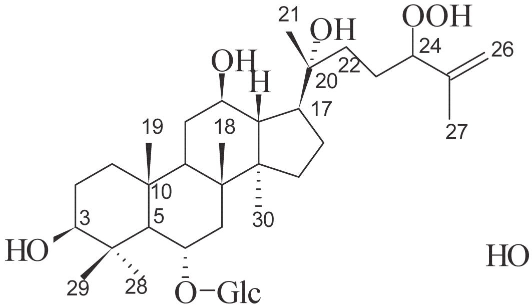
Fig. 1. Structures of the New Ginsenosides **1a** and **1b**

* Two new dammarane-type saponins, named **ginsenoside Ki** (**1a**) and **ginsenoside Km** (**1b**),
** 15 Known compounds (2--16):
ginsenoside Rg_1 (**3**), notoginsenoside R_1 (**4**), floralginsenoside M (**5**), floralginsenoside N (**6**), ginsenoside F_1 (**7**), ginsenoside F_5 (**8**), ginsenoside F_3 (**9**), vinaginsenoside R_4 (**10**), ginsenoside Ia (**11**), ginsenoside Rd (**12**), ginsenoside Rc (**13**), ginsenoside Rb_2 (**14**), ginsenoside Rb_1 (**15**), and ginsenoside Rh_6 (16).

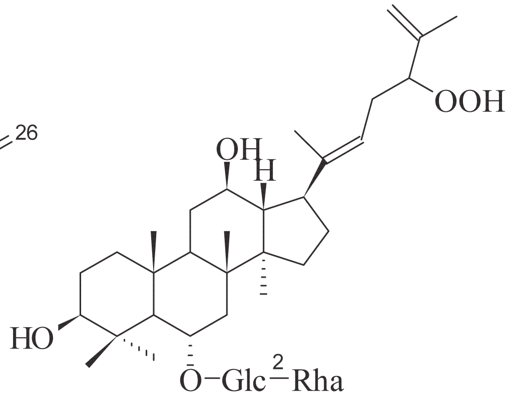
005-6-2. 人參葉 Steamed Ginseng-Leaf *Panax ginseng* C. A. Meyer [Araliaceae]

Components, Dammarane-type glycosides SL1;SL2, SL3

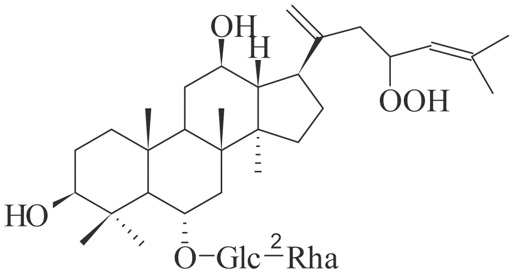
* Nguyen Huu Tung, Young Ho Kim et al :
Chem. Pharm. Bull. **58**(8) 1111-1115 (2010)



Ginsenoside SL1 (**1**)



Ginsenoside SL-2 (**2**)



Ginsenoside SL3 (**3**)

Fig. 1. Structures of Ginsenosides SL1-SL3 (**1--3**)

005-6-3. 人參葉 Ginseng Folium

*Three new triterpenoids from *Panax ginseng* exhibit cytotoxicity against human A549 and Hep-3B cell lines

** Hai-Ying Ma, Hui-Yuan Gao, Jian Huang, Bo-hang Sun, Bo Yang:
J Nat Med **66** (3) 576-582 (2012)

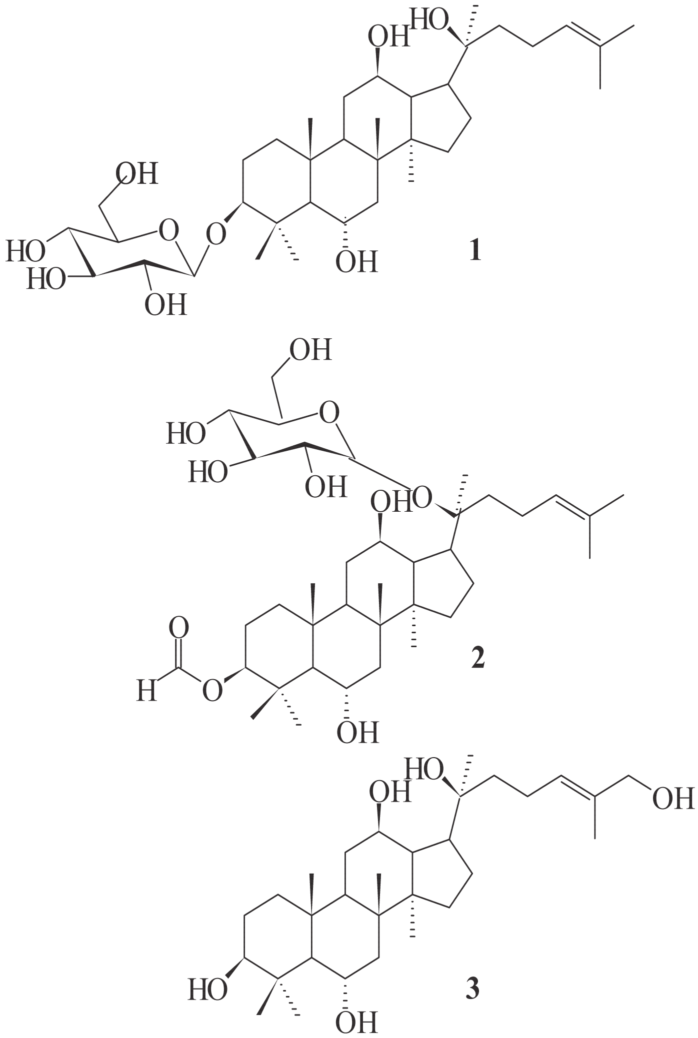
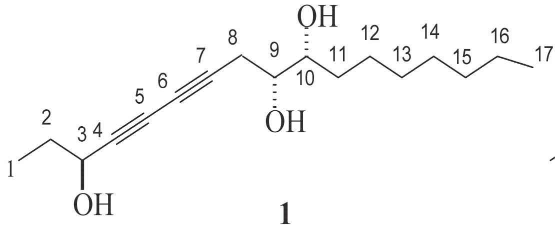


Fig. 1. Structures of Compounds **1--3**

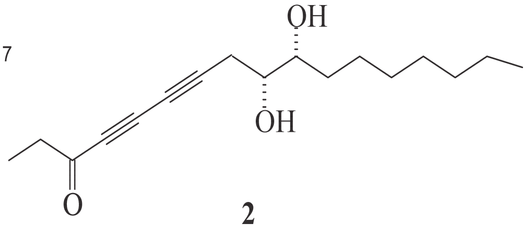
* Three new Triterpenoid derivatives, 3-*O*-β–D-glucopyranosyl-20(*S*)-protopanaxtriol (**1**), 3-fomyloxy-20-*O*-β–D-glucopyranosyl-20(*S*)-protopanaxtriol (**2**), and 26-hydroxy-24(*E*)-20(*S*)-protopanaxtriol (**3**), along with six known ginsenosides, were isolated from leaves of *Panax ginseng*.

005-7. 人參 Antimicrobial Polyacetylenes from *Panax ginseng* Hairy Root Culture

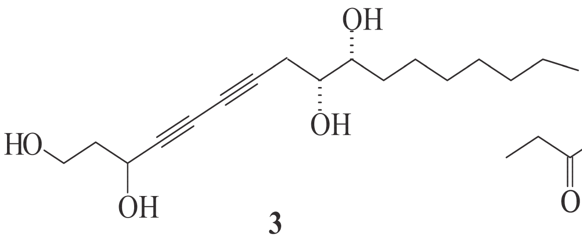
* Noriaki Fukuyama, Masaaki Shibuya, and Yutaka Orihara:
Chem. Pharm. Bull. **60**(2) 377-380 (2012)



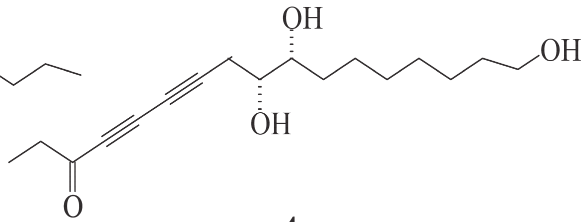
1
(dihydropanaxacol)



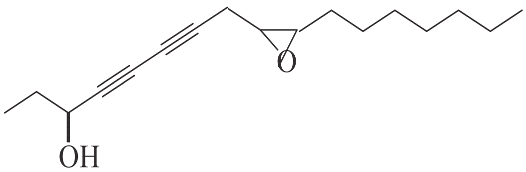
2
(panaxacol)



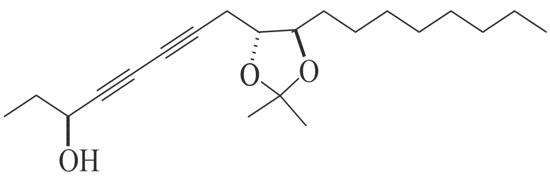
3
(1-hydroxydihydropanaxacol)



4
(17-hydroxypanaxacol)



5
(ginsenoyne D)



1a

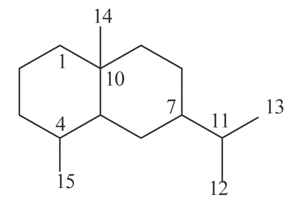
Fig. 1. The Structures of Compounds **1--5** and **1a**

* Two new Polyacetylenes, 1-hydroxydihydropanaxacol (**3**) and 17-hydroxypanaxacol (**4**), were isolated from *Panax ginseng* hairy root culture, along with dihydropanaxacol (**1**), panaxacol (**2**) and ginsenoyne D (**5**). Highly hydroxylated compounds **1--4** were isolated from the medium and compound 5, which was a biosynthetic precursor of compound **1**, was isolated from the roots. Compounds **1--4** showed antimicrobial activity against *Staphylococcus aureus, Bacillus subtilis, Cryptococcus neoformans* and *Aspergillus fumigatus*.

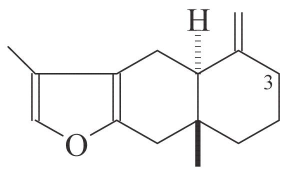
It is suggested that *Panax ginseng* plants release antimicrobial polyacetylenes into the surrounding soil from the roots as defense compounds.

006-1-1. 唐白朮 Atractylodis Rhizoma

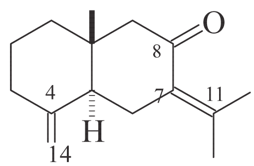
* *Atractylodes ovata* De Candolle [Compositae]



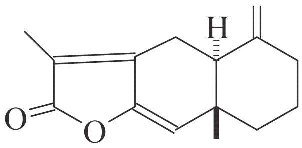
Eudesmane type



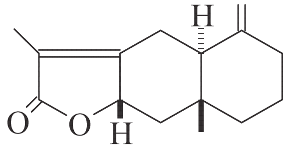
atractylon



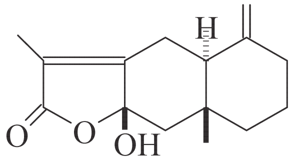
eudesma-4(14), 7(11)-dien-8-one



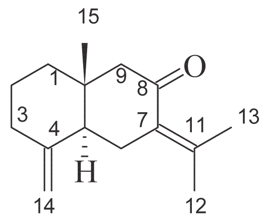
atractylenolide I



atractylenolide II



atractylenolide III



selina-4(14),7(11)-dien-8-one

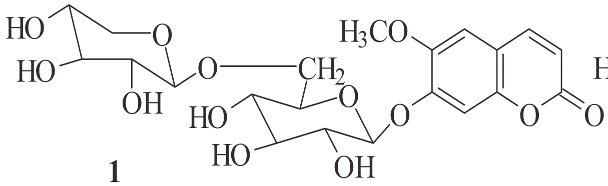
* Yun-Hee Chang et al;

Biol Pharm Bull, **30**(4), 719-723 (2007)

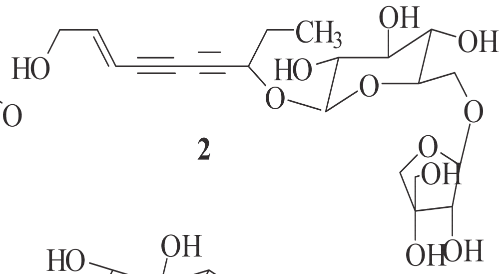
006-1-2-1. 唐白朮 Atractylodis Rhizoma

* *Atractylodes ovata* De Candolle [Compositae]

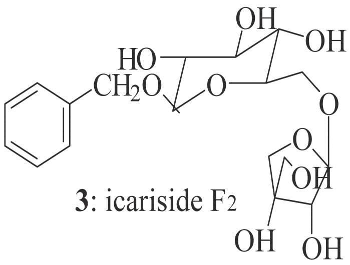
** J. Kitajima, A. Kamoshita, T. Ishikawa, A.Takano, T. Fukuda S. Isoda, and Y. Ida: *Chem. Pharm. Bull.* **51**(9), 1106-1108 (2003)



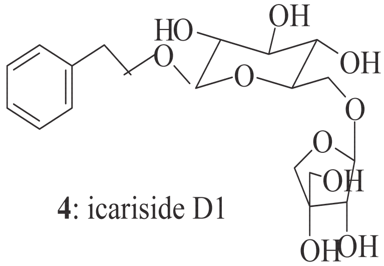
1



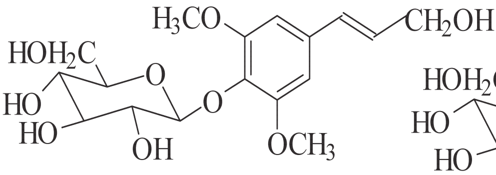
2



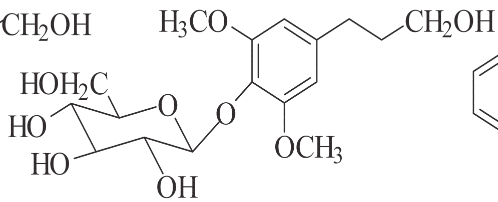
3: icariside F2



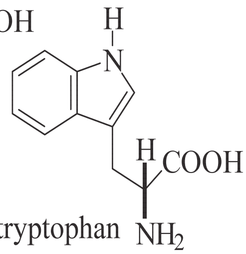
4: icariside D1



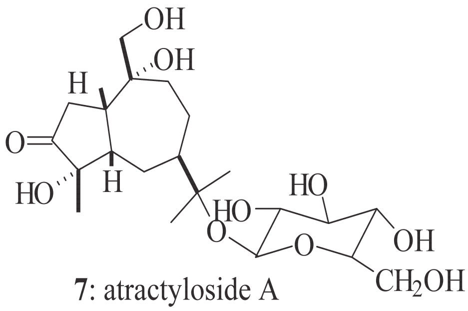
5: syringin



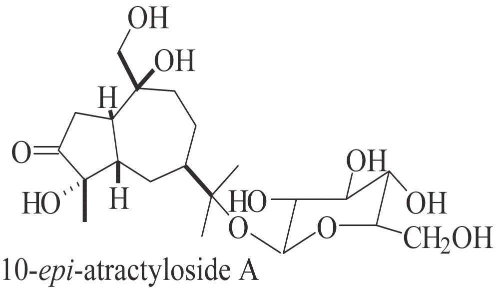
6: dihydrosyrindine



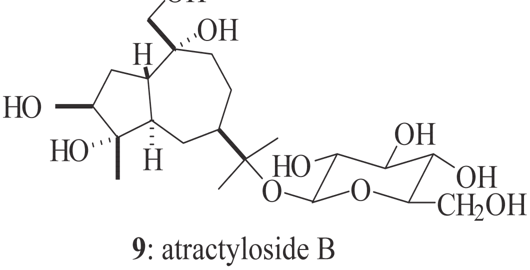
10: L-tryptophan



7: atractyloside A



8: 10-*epi*-atractyloside A



9: atractyloside B

*
1: scopoletine β–D-xylopyranosyl-(1-6)-
β–D-glucopyranoside.
2: (2*E*)-2-decene-4.6-diyne-1,8-diol 8-***O***-
β–D-apiolfuranosyl-(1-6)-β–D-glucopyranoside.
Aromatic compound glucosides: (**3**--**6**)
guaiane-type sesquiterpenoid glucosides: (**7**--**9**)

006-1-2-2. 唐白朮 Atratylodis Rhizoma

* Junichi Kitajima et al : *Chem. Pharm. Bull.* **51**(9), 1106-1108 (2003)

** (Continued 006-1-2-1)

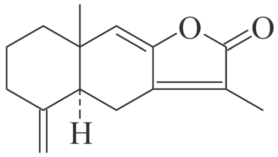
Fig. 1. Polar Constituents of *A. japonica, A. lancea,* and *A. ovata* Rhizome

1-9mg,+; 10-19mg, ++; 20-39mg, +++; 40-89mg, ++++; 90-199mg, +++++; =200mg, ++++++ (from 1.4kg of *A. japonica,* 1.5kg of *A. lancea,* and 1.5kg of *A. ovata*).

1: scopoletin β–D-xylopyranosyl-(1-6)-β–D-glucopyranoside,
2: (2*E*)-2-decene-4,6-diyne-1,8-diol 8-***O***-β–D-apiofuranosyl-(1-6)-β–D-glucopyranoside,
3: icariside F_2, **4**: icariside D_1, **5**: syringin, **6**: dihydrosyrindine, **7**: atractyloside A,
8: 10-*epi*-atractyloside A, **9**: atractyloside B, 1**0**: L-tryptophan,
11: (1*S*,4*S*,5*S*,7*R*,10*R*)-10,11,14-trihydroxyguai-3-one 11-***O***-β–D-glucopyranoside,
12: (1*S*,4*S*,5*R*,7*R*,10*R*)-10,11,14-trihydroxyguai-3-one-11-***O***-β–D-glucopyranoside,
13: (1*S*,5*R*,7*R*,10*R*)-secoatractylolactone 11-***O***-β–D-glucopyranoside,
14: atractyloside A 14-***O***-β–fructofuranoside,
15: (1*S*,4*S*,5*S*,7*R*,10*S*)-10,11,14-trihydroxyguai-3-one-11-***O***-β–D-glucopyranoside,
16: (5*R*,7*R*,10*S*)-isopterocarpolone β–D-glucopyranoside,
17: atractyloside I, **18**: *cis*-atractylodede I, **19**: atractyloside C, **20**: atractyloside D,
21: atractyloside E, **22**: atractyloside G,
23: (2*R*,3*R*,5*R*,7*R*,10*S*)-atractyloside G 2-***O***-β–D-glucopyranoside,
24: (1*R*,2*R*,4*S*)-2-hydroxy-1,8-cineole-β–D-glucopyranoside,
25: (1*S*,2*S*,4*R*)-2-hydroxy-1,8-cineole β–D-glucopyranoside,
26: (4*S*)-*p*-menth-1-ene-7,8-diol 8-***O***-β–D-glucopyranoside,
27: (1*S*,2*R*,4*S*)-*p*-menthane-1,2,8-triol 8-***O***-β–D-glucopyranoside,
28: 3-methyl-3-butenyl β–D-apiofuranosyl-(1-6)-β–D-glucopyranoside,
29: 3-methyl-2-butenyl β–D-apiofuranosyl-(1-6)-β–D-glucopyranoside,
30: isopropyl β–D-apiofuranosyl-(1-6)-β–D-glucopyranoside,
31: 4-hydroxy-3-methoxyphenyl β–D-glucopyranoside,
32: 4-hydroxy-3-methoxyphenyl β–D-apiofuranosyl-(1-6)-β–D-glucopyranoside,
33: 4-hydroxy-3-methoxyphenyl β–D-xylopyranosyl-(1-6)-β–D-glucopyranoside,
34: (2*E*,8*E*)-2,8-decadiene-4,6-diyne-1,10-diol 11-***O***-β–D-glucopyranoside,
35: (3*R*,5*S*,8*S*,10*S*)-3-hydroxyatractylerolide III 3-***O***-β–D-glucopyranoside,
36: seguinoside B,
37: phenethyl α–L-rhamnopyranosyl-(1-6)-β–D-glucopyranoside,
38: L-phenylalanone.

006-2-1. 和白朮 A New Polyacetylene Compound from Atractylodes Rhizome

* Kano Y, Komatsu K, Saito K, Bando H and Sakurai T:
Chem Pharm Bull, **37**(1), 193-194 (1989)



1: atractylenolide I

CH_2-CH_2-CH(OAc)-CH_2-CH=CH-(C≡C)$_2$-CH=CH-CH_3 (with CH_2 bearing OAc; *E*, *E*)

2: diacetyl-atratylodiol

CH_2(OAc)-CH_2-CH(OAc)-CH_4=CH-CH_6=CH-(C≡C)$_2$-CH_{12}=CH-CH3 (*E*, *E*, *E*)

3

CH_2(OR)-CH_2-CH(OR)-CH_2-CH2-CH_6=CH-(C≡C)$_2$-CH_{12}=CH-CH_3 (*E*, *E*)

4: R=Ac
5: R=H

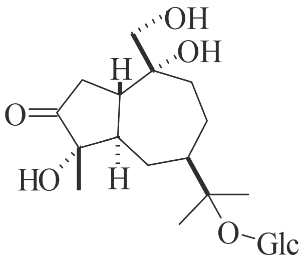
---

* **3**: (4*E*,6 *E*,12*E*)-tetradecatriene-8,10-diyne-1,3-diol diacetate
4: (6*E*,12*E*)-tetradecadiene-8,10-diyne 1,3-diol diacetate

006-2-2. 和白朮 Atractylodis Rhizoma

* *Atractylodes japonica* Koidzumi ex Kitamura [Compositae]

** Kitajima J et al: *Chem Pharm Bull,* **51**(2), 152-157 (2003)



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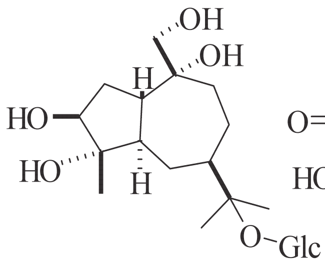

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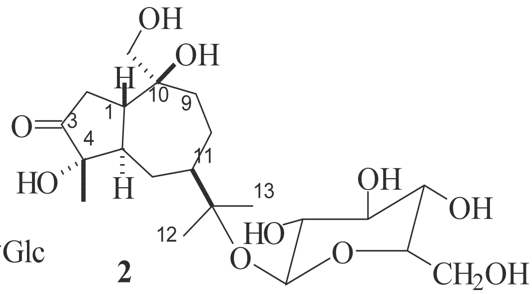

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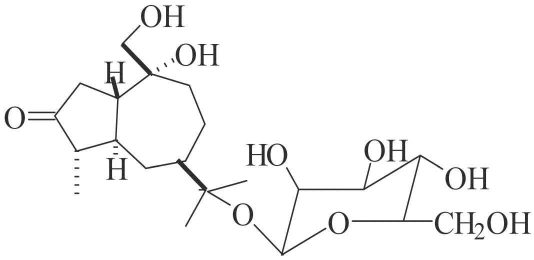

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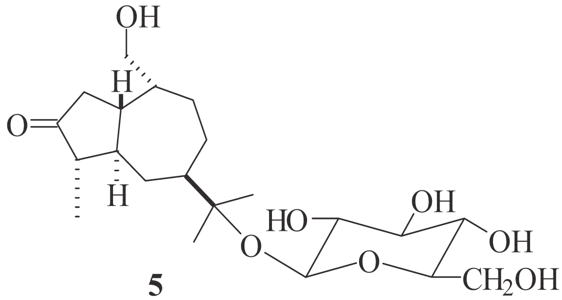

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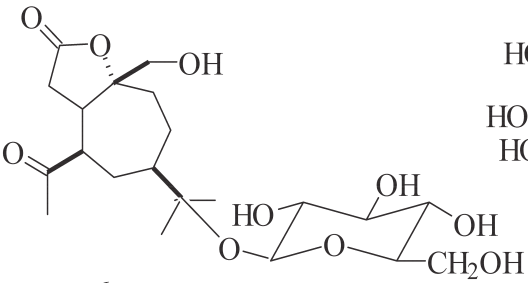

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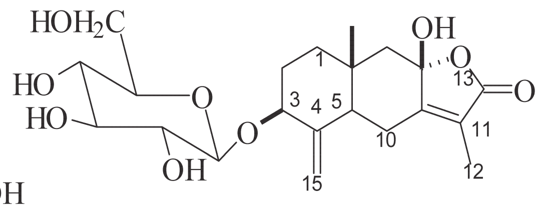

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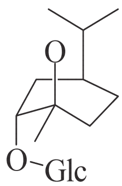

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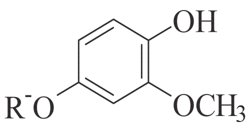
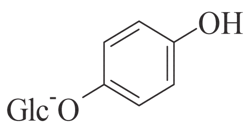


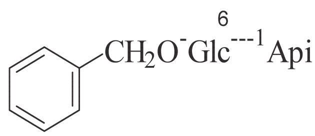
R

9 : Glc

10: Glc--Api



12

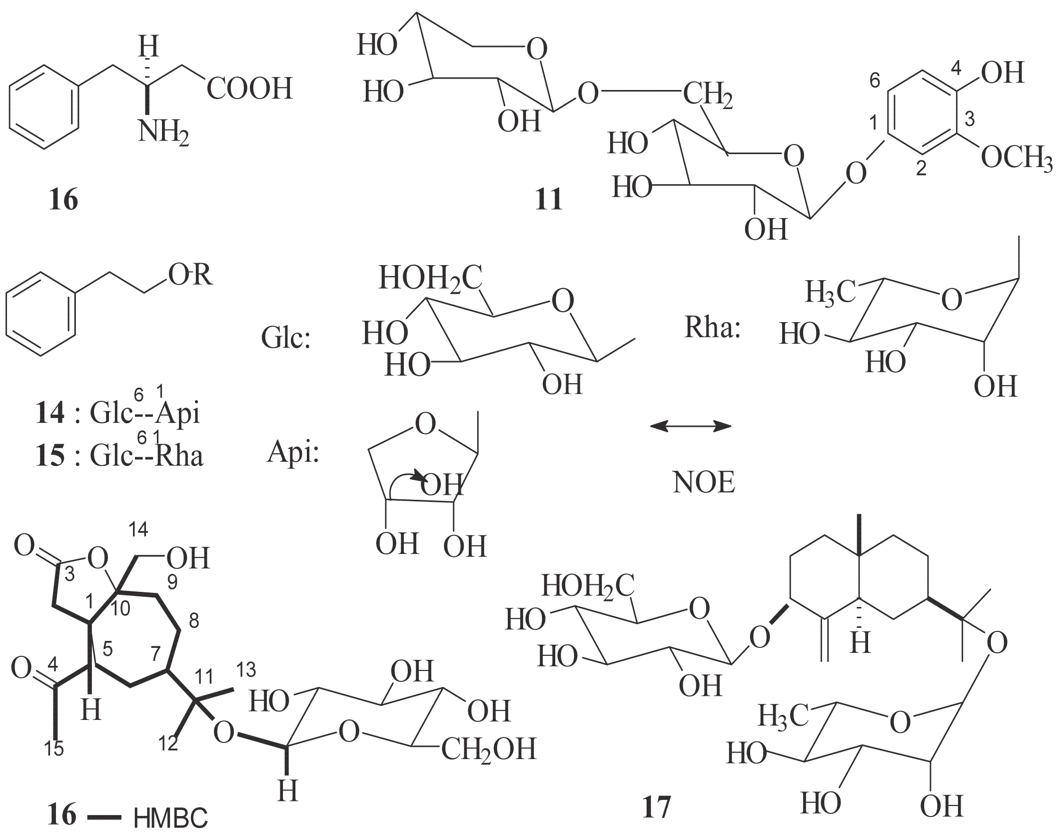


13

006-2-3. 和白朮 Atractylodis Rhisoma (Continued 006-2-1)

* *Atractylodes japonica* Koidzumi ex Kitamura [Compositae]

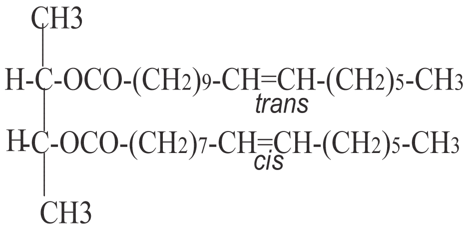
** Kitajima J et al : *Chem Pharm Bull,* **51**(2), 152-157 (2003)



* **1** : atractyloside A
3 : atractyloside B
4 : (1*S*,4*S*,5*S*,7*R*,10*R*)-10,11,14-trihydroxyguai-3-one 11-***O***-β–D-glucopyranoside
5 : (1*S*,4*S*,5*R*,7*R*,10*R*)-11,14-dihydroxy-guai-3-one 11-***O***-β–D-glucopyranoside
6 : (1*S*,5*R*,7*R*,10*R*)-secoatractylolactone 11-***O***-β–D-glucopyranoside
7 : (3*S*)-3-hydroxyatractylenolide III 3-***O***-β–D-glucopyranoside
11 : 4-hydroxy-3-methoxyphenyl β–D-xylopyranosyl (1 ⟶ 6)-β–D-glucopyranoside

007. 薏苡仁 Coicis Semen

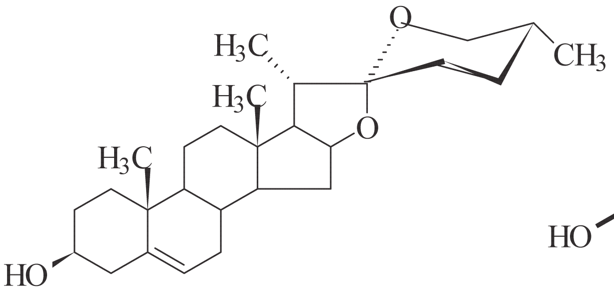
* *Coix lachryma-jobi* L. var. *ma-yuen* Stapf [Gramineae]



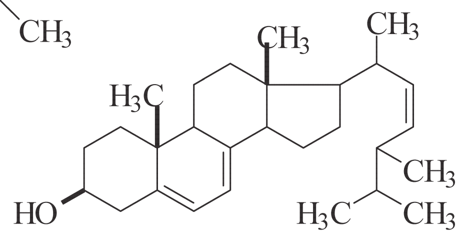
coixenolide

008-1-1. 山藥 Dioscoreae Rhizoma

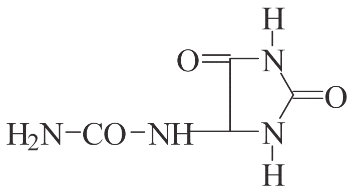
* *Dioscorea batatas* Decaisne [Dioscoreaceae]



diosgenin



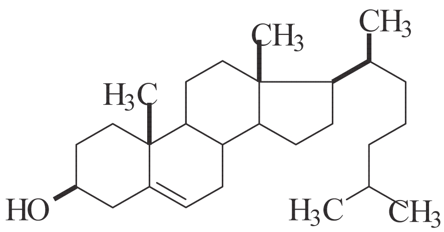
ergosterol



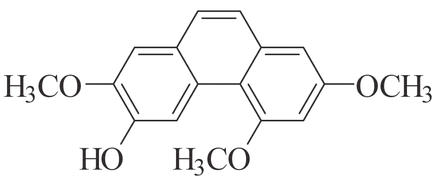
allantoin

$(CH_3)_3\overset{+}{N}CH_2CH_2OH, OH^-$

choline



cholesterol



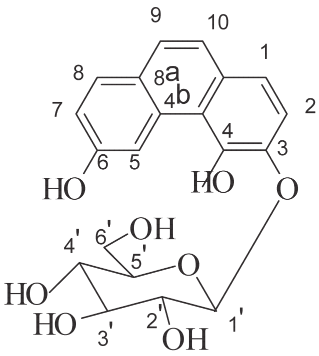
6-hydroxy-2,4,7-trimethoxyphenanthrene
(batatasin I)

* Yue Lu et al : *Biol. Pharm. Bull.* **34**(7) 1021-1025 (2011)

008-1-2. 山藥 Dioscoreae Rhizoma

* A New Phenanthrene Glycoside and other Constituents from *Dioscorea opposita* Thunb.(=*D. batatas* Decaisne) [Dioscoreaceae]

** M Sautour, A-C M-Offer, T Miyamoto, H Wangner, and M-A L-Dubois, *Chem. Pharm. Bull.* **52**(10), 1235-1237 (2004)



1: 3,4,6-trihydroxyphenanthrene-3-***O***-β−D-glucopyranoside

---

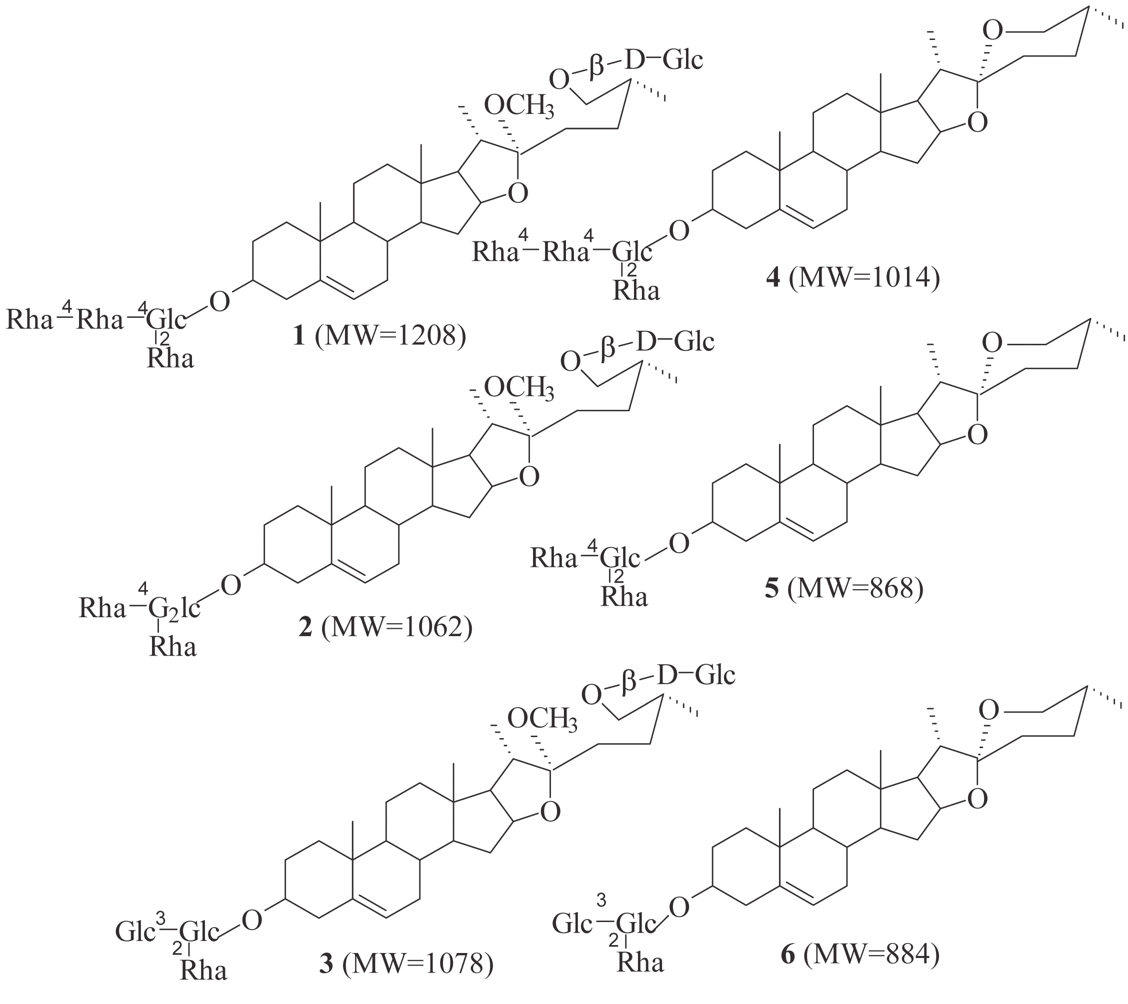
* Known Compounds:

2: soyacerebroside I
3: adenosine
4: β−sitosterol
5: palmitic acid
6: palmitoyloleoylphosphatiddylcholine

008-2-1. 山藥 Effeect of Harvest Time on Saponins in Yam (*Dioscorea pseudojapomica* Yamamoto) [基隆]

* Jau-Tien Lin, Su-Lin Chen, Shih-Chuan Liu and Deng-Jye Yang:

Journal of Food and Drug Analysis, **17**(2) 116-122 (2009)



Furostanol saponin **Spirostanol saponin**

Fig. 1. Chemical Structures of Yam saponin

* *Furostanol-type:*

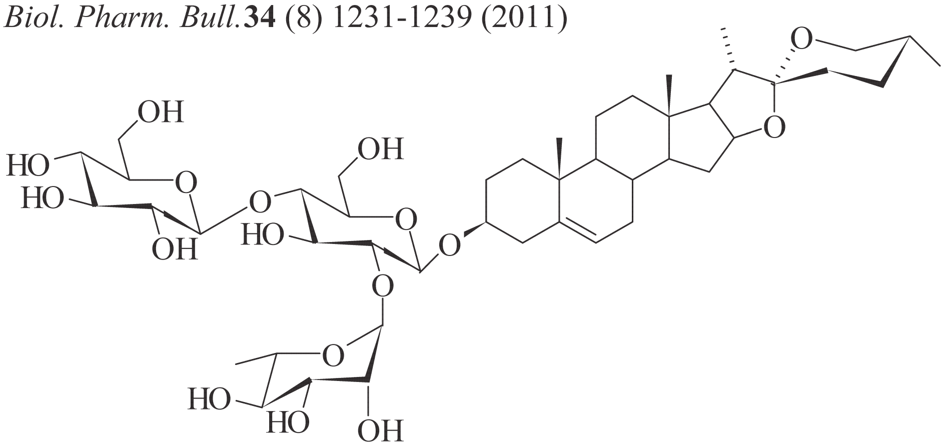
26-***O***-β–D-glucopyranosyl-22α–methoxyl-(25*R*)-furost-5-en-3β, 26-diol 3-***O***- L-rhamnopyranosyl-(1-2)-***O***-{[α–L-rhamnopyranosyl-(1-4)]-***O***-[α–L-rhamnopyranosyl-(1-4)]}-β–D-glucopyranoside (**1**), methyl protodioscin (**2**), methyl protogracilin (**3**),

* *Spinosatanol- type:*

(25*R*)-spirost-5-en-3β–ol 3-***O***-α–L-rhamnopyranosyl-(1-2)-***O***-{[α–L-rhamnopyranosyl-(1-4)]-***O***-[α–L-rhamnopyranosyl-(1-4)]}-β–D-glucopyranoside (**4**), dioscin (**5**) and gracilin (**6**).

008-3. 山藥 Deltonin Isolated from *Dioscorea zingiberensis* Wright (DZW) [Dioscoreaceae]

* Dan Shu, Yong Qing, Qingyi Tong, Yang He, Zhihua Xing, Yinglan Zhao, Yi Li, Yuquan Wei, Wen Huang, and Xiaohua Wu: *Biol. Pharm. Bull.* **34** (8) 1231-1239 (2011)



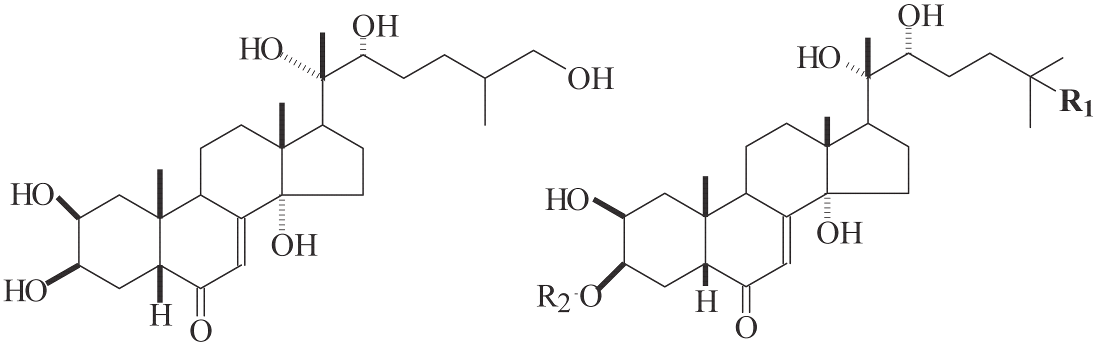
Deltonin
(= diosgenin-3-*O*-β–D-glucopyranosyl(1-4)-[α–L-rhamnopyranosyl(1-2)]-β–D-glucopyranoside)

009-1-1. 懷牛膝 Achyranthis Radix

* *Achyranthes bidentata* Blume

A. *fauriei* Leveille et Vaniot [Amaranthaceae]

** Insect Moulting hormone



inokosterone

ecdysterone R_1 = OH, R_2 = H

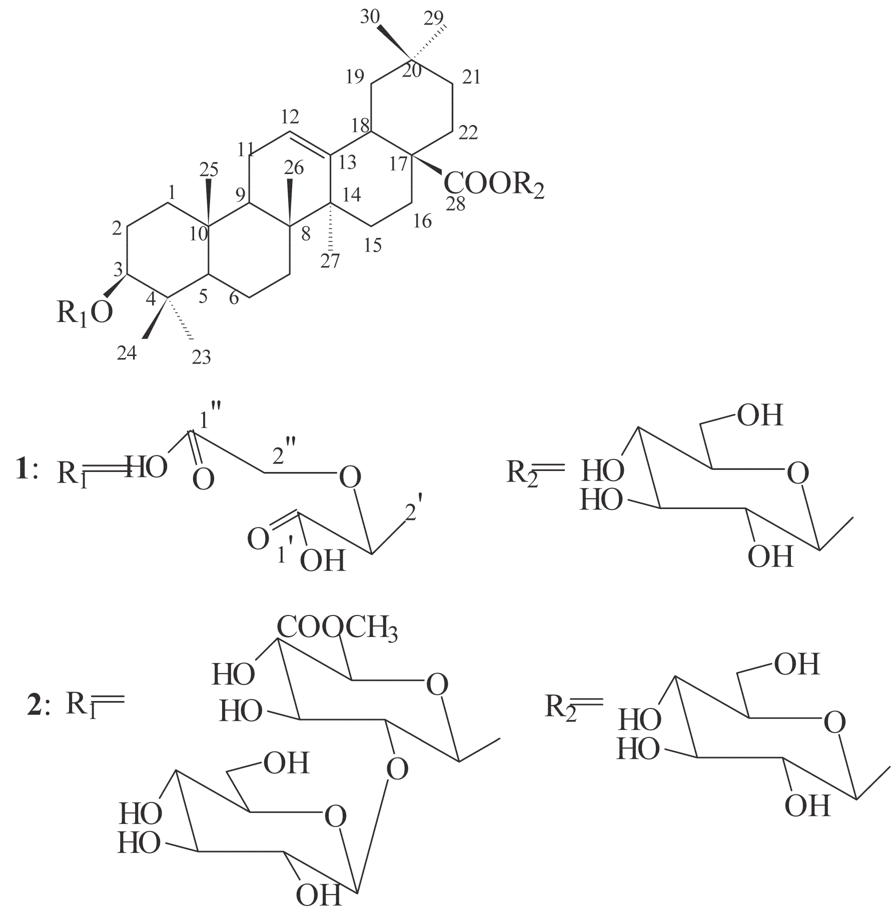
ponasteroside A R_1 = H, R_2 = Glc

Fig. 1. Chemical structures of compounds

009-1-2. 懷牛膝 Achyranthis Radix

* *Achyranthes bidentata* Blume [Amarantaceae]

Anne-Claire Mitaine-Offerr, Abderrazak Marouf, Bernard Hanquet, Nicolas Birlirakis, and Marie-Aleth Lacaille-Dubois,
Chem. Pharm. Bull. **49**(11), 1492-1494 (2001)

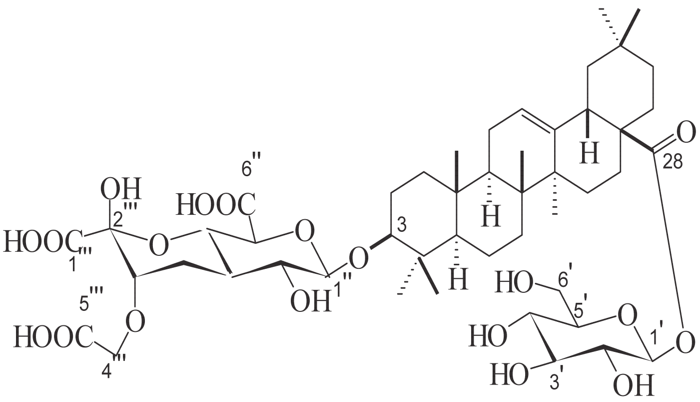


1. bidentatoside II
2. chikusetsusaponin V methylester

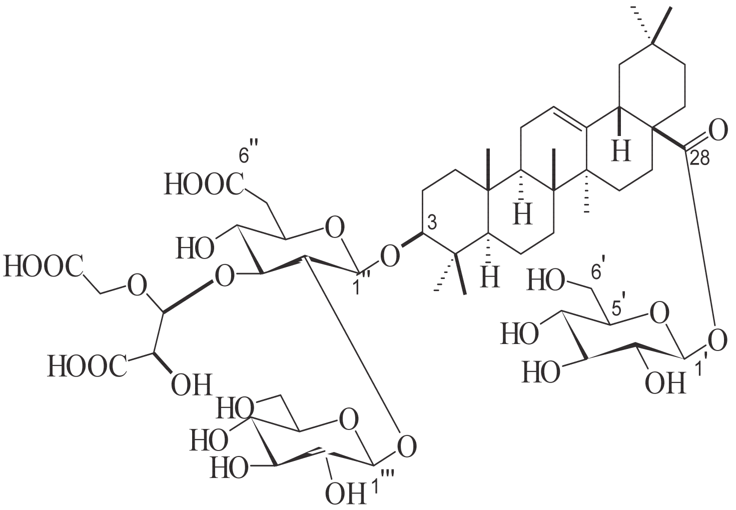
009-1-3. 懷牛膝 Achyranthesis Radix [Amaranthaceae]

* *Achyranthes bidentata* Blumei

** Tatsuro Hoshino, Yuji Narukawa, Yuji Haishima, Yukihiro Goda, Fumiyuki Kiuchi: *J Nat Med* : **67(**2) 386-389 (2013)



R=SO_3H: sulfachyranthoside B (**1**)
R=H: achyranthoside B (**3**)



R=SO_3H: sulfachyranthoside D (**2**)
R=H: achyranthoside D (**4**)

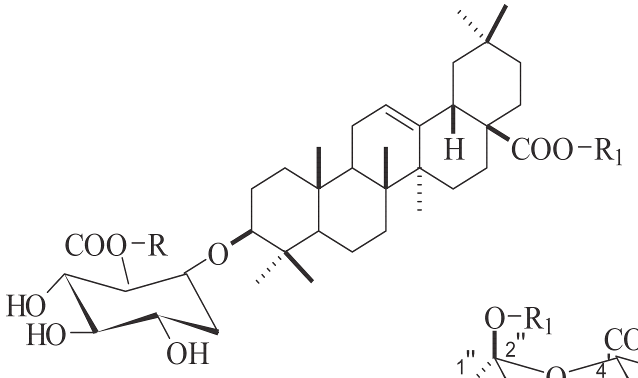
Fig. 1. Structures of sulfachyranthoside and related compounds

* Two new sulfated oleanan saponins from Achyranthes root: sulfachyranthoside B (**1**) and D (**2**), were iolated from a water extract of Achyranthes root (root of *Achyranthes bidentata*).

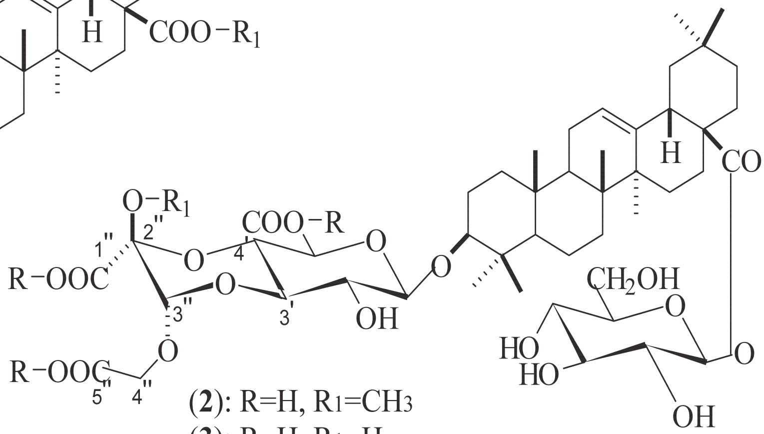
009-2-1. 和牛膝 Achyranthis Radix

* *Achyranthes fauriei* Leveille et Vaniot [Amaranthaceae]

** Y. Ida, Y. Satoh, M. Katsumata, M. Nagasao and J. Shoji, *Chem Pharm Bull,* **43**(5), 896-898 (1995)

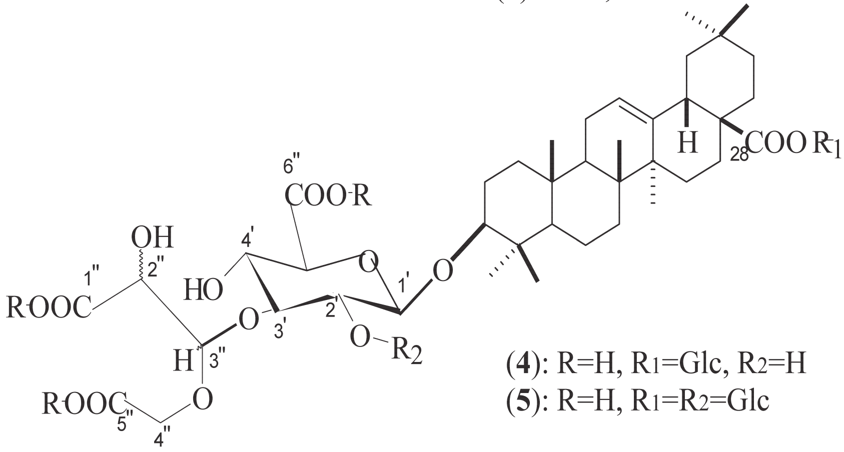


(**1**). R=H, R_1=Glc



(**2**): R=H, $R_1=CH_3$

(**3**): R=H, R_1=H



(**4**): R=H, R_1=Glc, R_2=H

(**5**): R=H, $R_1=R_2$=Glc

***Oleanolic acid saponins:**

chikusetsusaponin IVa (**1**), V, 28-desgluco-chikusetsusaponin V, pseudoginsenoside RT

Novel cytotoxic saponins:

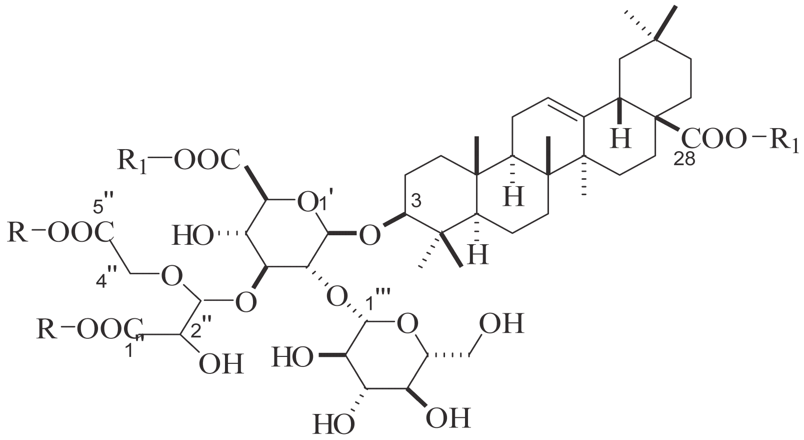
achyranthosides A (**2**) and B (**3**).

New saponins: achyranthosides C (**4**) and D (**5**)

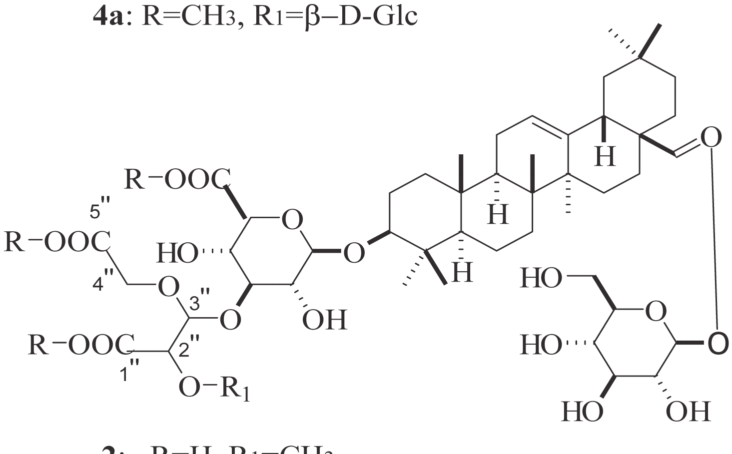
009-2-2. 和牛膝 Achytanthis Radix

* *Achyranthes fauriei* Leveille et Vaniot [Amaranthaceae]

** Hidehiro Ando, Motonori Fukumura, Yumiko Hori, Yasuaki Hirai, Kazuo Toriizawa, Yoshiyuki Kuchino, Yoshiteru Ida: *J Nat Med,* **62**(1), 57-62 (2008)



1 : R=R_1=H
Ia: R=R_1=CH_3
4: R=H, R_1=β–D-Glc
4a: R=CH_3, R_1=β–D-Glc



2: R=H, R_1=CH_3
2a: R=R_1=CH_3
3: R=R_1=H
3a: R=CH_3, R_1=H

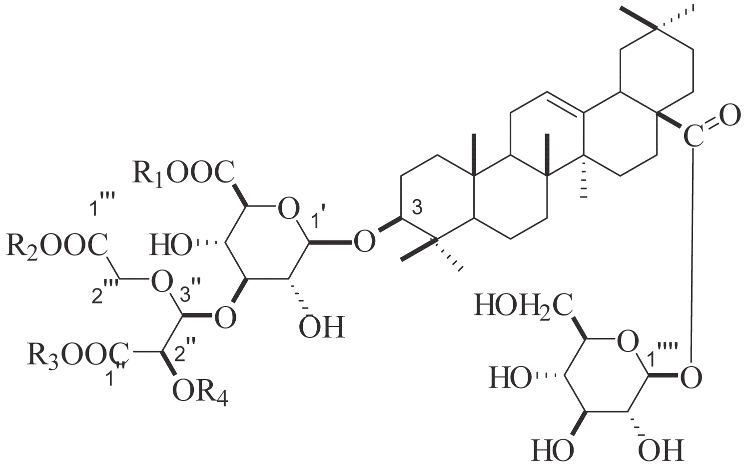
Fig. 1. Compounds Isolated from *A. fauriei* root

* **(1). achyranthoside G**	(1a). achyranthoside G methyl ester
(2). achyranthoside H	(2a). achyranthoside H methyl ester(*15)
(3). achyranthoside C	(3a). achyranthoside C methyl ester
(4). achyranthoside D	(4a). achyranthoside D methyl ester

009-2-3. 和牛膝 Achyranthis Radix

* Achyranthoside H methyl ester, a novel oleanolic acid saponin derivative from *Achyranthes fauriei* Leveille et Vaniot roots

** Motonori Fukumura, Hidehiro Ando, Yasuaki Hirai, Kazuo Toriizuka, Yoshiteru Ida, Yoshiyuki Kuchino: *J Nat Med* **63**(2) 181-188 (2009)



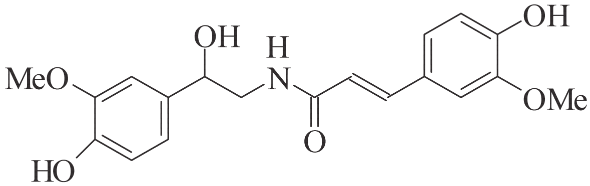
	R_1	R_2	R_3	R_4
Achyranthoside C (AC)	H	H	H	H
Achyranthoside C 6'-methyl ester (AC-6;Me)	CH_3	H	H	H
Achyranthoside C 1'''-methyl ester (AC-1'''Me)	H	CH_3	H	H
Achyranthoside C methyl ester (AC-Me)	CH_3	CH_3	CH_3	H
Achyranthoside H methyl ester (AH-Me)	CH_3	CH_3	CH_3	CH_3

Fig. 1. Chemical Structures of AH-Me and its analogues isolated from the MeOH-soluble fraction of the dried roots of *Achyranthes fauriei* Leveille et Vaniot

009-2-4. 和牛膝 Achyranthis Radix

* Isolation of (*S*)-*N*-feruloyl Normetanephrine from *Achyranthes faurieri* and Determination of Its Absolute Configuration

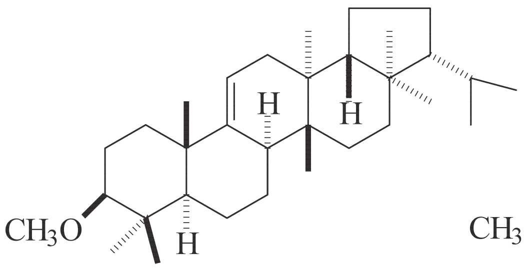
** Mikio Fujii, Yasuaki Hirai, Tsuyoshi Miura, Makiko Saito, Motonori Fukumura, Yumiko Hori, Hiroyuki Akita, Kazuo Toriizuka, and Yoshiteru Ida: *Shoyakugaku Zasshi*, **64**(1) 26-27 (2010)



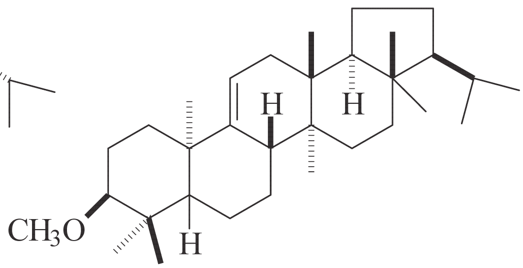
N-Feruloyl normetanephrin ((-)-1)

012. 竹葉 Phyllostachys Folium

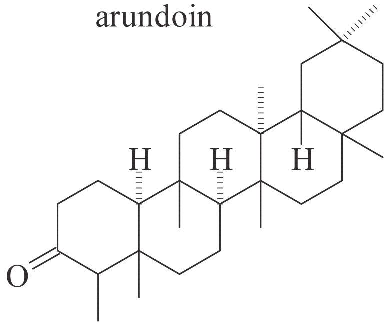
* *Phyllostachys bambusoides* Sieb. et Zucc.;
P. *nigra* Munro var. *henonis* Staph [Bambusaceae]



arundoin



cylindrin

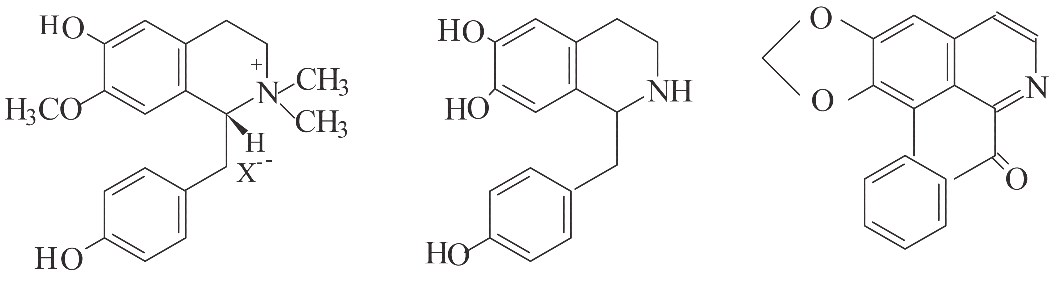


friedelin

Fig. 1. Chemical structures of compounds

013-1. 蓮肉Nelumbinis Semen (Loti Semen)

* *Nelumbo nucifera* Gaertner [Nymphaeaceae]



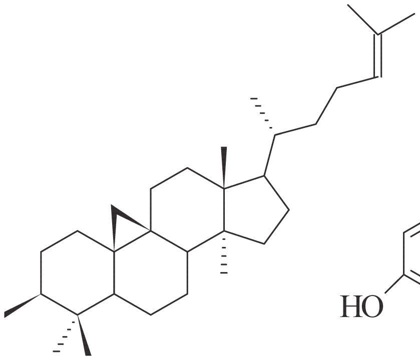
lotusine　　demethylcoclaurine　　oxoushinsunine

Fig. 1. Chemical structures of compounds from isolated *Nelumbo nucifera* Gaertner

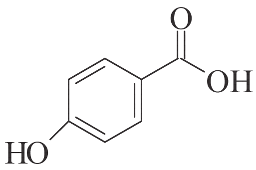
013-2. 蓮肉Nelumbinis Semen (Loti Semen)

* *Nelumbo nucifera* Gaertner [Nymphaeaceae]

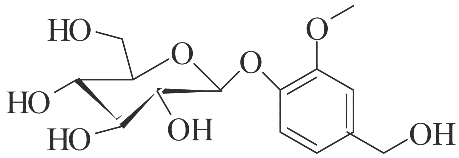
** Hyun Ah Jung et al.: *Biol. Pharm. Bull.* **33**(2) 267-272 (2010)



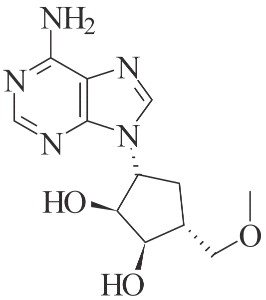
1 cycloartenol



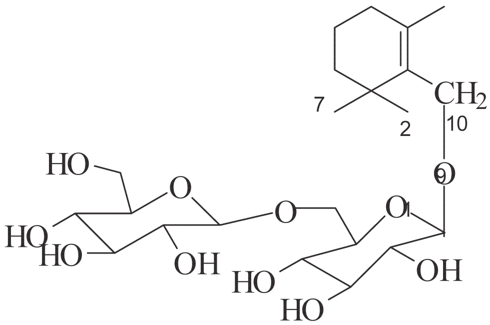
2 *p*-hydroxybenzoic acid



3 vanilloside



4 5'-***O***-methyladenosine



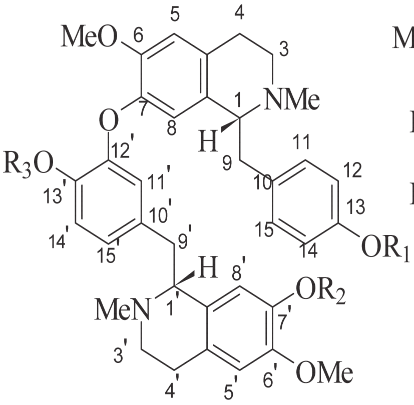
5 β−cyclogeraniol diglycoside

Fig. 1. Structure of Compounds **1**--**5** from *Nelumbo nucifera*

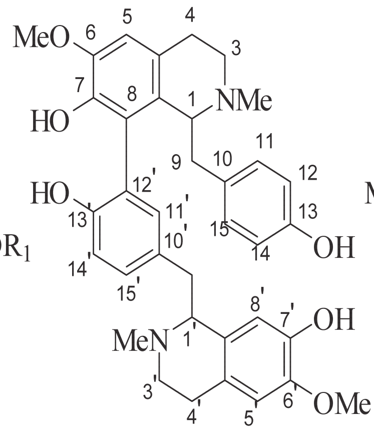
013-3. 蓮肉Nelumbinis Semen (Loti Semen)

* Bisbenzylisoquinoline Alkaloids from *Nelumbo nucifera* Gaertner [Nelumbonaceae)

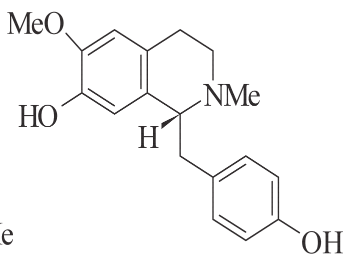
** Atsuko Itoh, Tomomi Saitoh, Kaori Tani, Misaki Uchigaki, Yumi Sugimoto, Jun Yamada, Hiroshi Nakajima, Hideo Ohshiro, Schjian Sun, and Takao Tanahashi: *Chem. Pharm. Bull.* **59**(8) 947-951 (2011)



1: $R_1=R_2=R_3=H$
4: $R_1=R_2=Me$, $R_3=H$
5: $R_1=R_3=H$, $R_2=Me$
6: $R_1=Me$, $R_2=R_3=H$
7: $R_1=R_2=R_3=Me$



2 and **3**



8 : (*R*)--*N*-Methylcoclaurine

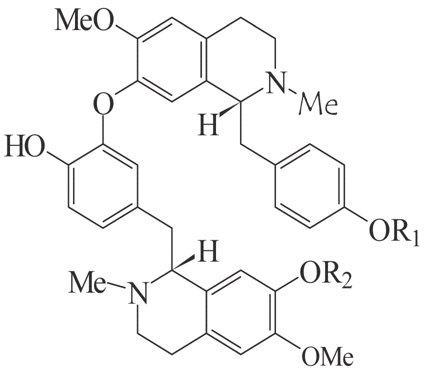
Fig. 1. Structures of Compounds **1**--**7**

---

* From the embryos of the seeds of *Nelumbo nucifera,* three bisbenzylisoquinoline alkaloid, nelumboferine (**1**) and nelumborines A(**2**) and B(**3**), were isolated along with known compound, neferine (**4**) , liensinine (**5**), isoliensinine (**6**) and anisic acid.

013-4. 蓮肉 Synthesis and Pharmacological Activity of Alkaloids from Embryo of Lotus, *Nelumbo nucifera*

* Katsumi Nishimura, Shinji Horii, Takao Tanahashi, Yumi Sugimoto, and Jun Yamada: *Chem. Pharm. Bull.* **61**(1) 59-68 (2013)



R_1=R_2=Me: neferine (**1**)
R_1=H, R_2=Me: liensinine (**2**)
R_1=Me, R_2=H: isoliensinine (**3**)
R_1=R_2=H: nelumboferine (**4**)

Fig. 1. Structures of Alkaloids of the Embryo of *Nelumbo nucifera*

---

* Bisbenzylisoquinoline alkaloid, nelumboferine which was recentry isolated from the embryo of *Nelumbo nucifera,* and stereoisomers of neferine, which is a major alkaloid of the embryo of *N. nucufera* were stereo-selectively synthesized. Pharmacological activity of nelumboferine, stereoisomers of neferine, liensinine, isolensinine, and *O*-methylneferine were evaluated.

014. 胡黃連 Picrorrhizae Rhizoma

**Picrorrhiza kurrooa* Royle ex. Benth. [Berberidaceae]

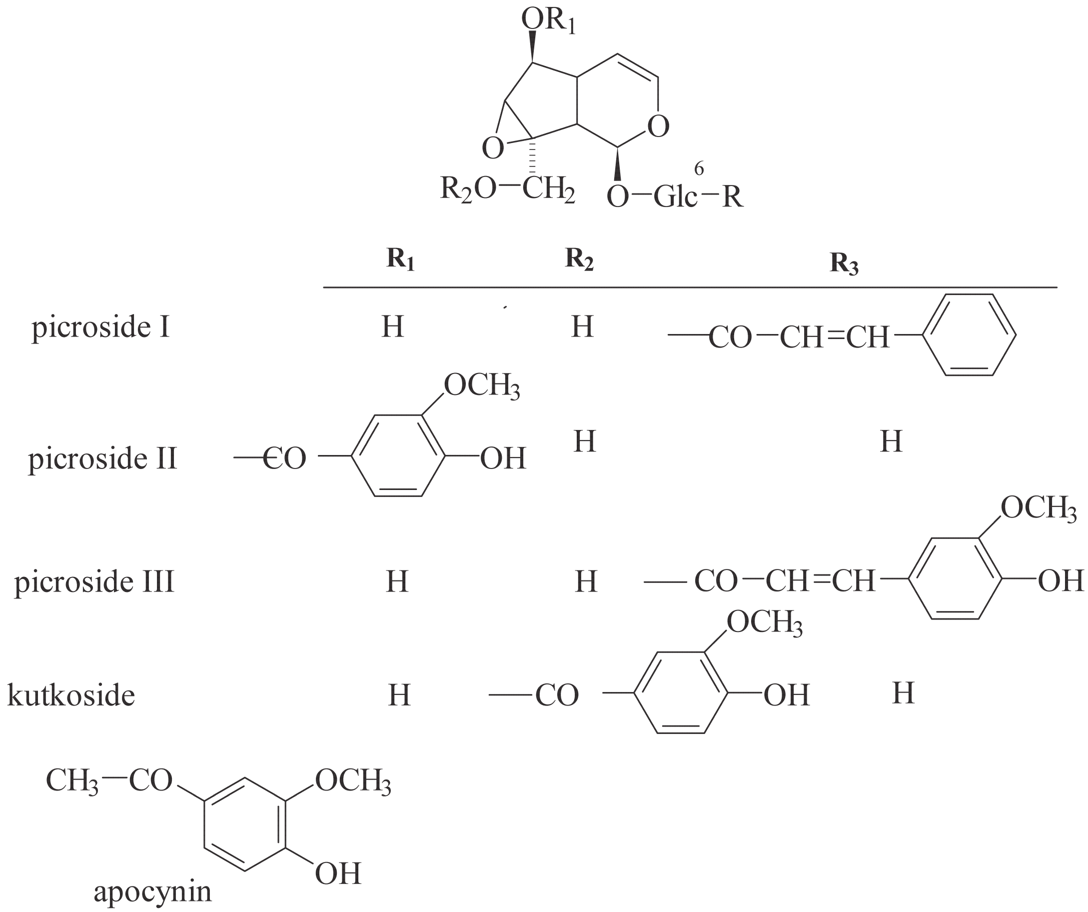
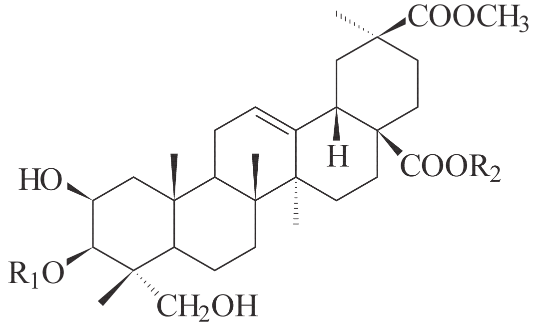


Fig. 1. Chemical structures of compounds

015. 商陸 Phytolaccae Radix

* *Phytolacca esculenta* Van Houtt. [Phytolaccaceae]

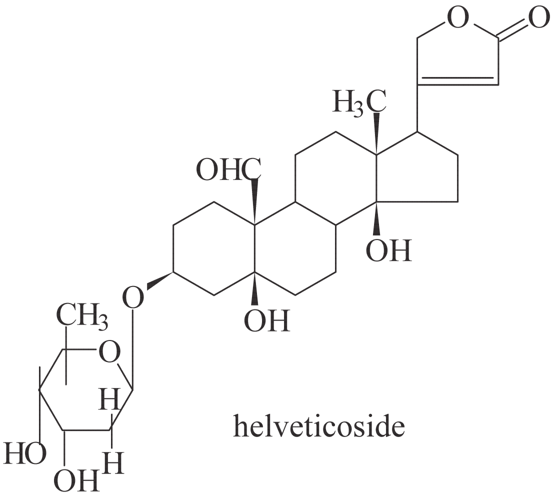


	R_1	R_2
phytolaccasaponin B	Glc$\overset{4}{—}$Xyl—	Glc—
phytolaccasaponin E	Glc$\overset{4}{—}$Xyl—	H
phytolaccasaponin G	Xyl	H

Fig. 1. Chemical structures of compounds

017. 葶藶子 Lepidii Semen

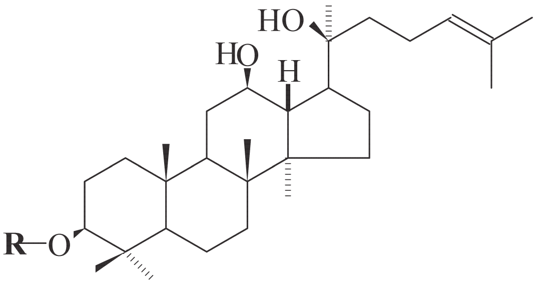
Lepidium virginicum Linn.
L. *apetalum* Willd. [Cruciferae]



helveticoside

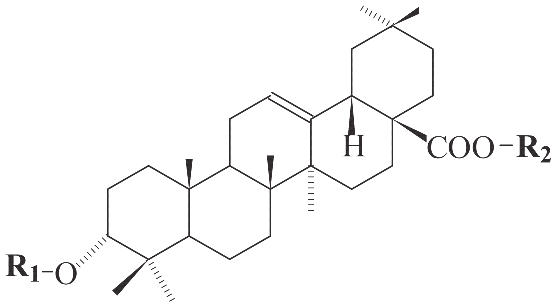
I-1-1. 竹節人参 Panacis Japonici Rhizoma (根莖)

* *Panax japonicus* C. A. Meyer [Araliaceae]



20(*S*)-protopanaxadiol : R=H

chikusetsusaponin III : R=Xyl-^{6}Glc-^{2}Glc



oleanolic acid : R_1＝R_2＝H

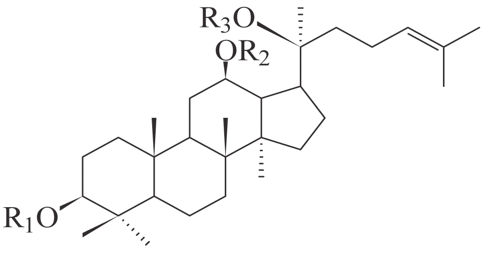
chikusetsusaponin IV : R_1＝Ara(*f*)—^{4}GlcA, R_2＝Glc—

chikusetsusaponin V : R_1＝Glc—^{2}GlcA, R_2＝Glc —

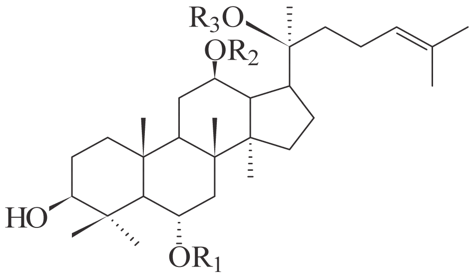
I-1-2. 竹節人參 Panacis Japonici Fructus (1-1) 果實

* New Triterpenoid Saponins from Fruits Specimens of *Panax japonicus* Collected in Kumamoto and Miyazaki Prefectures (1)

** Kouichi Yoshizaki and Shoji Yahara: *Chem. Pharm. Bull.* **60**(3) 354-362 (2012)



A series



B series

(A)-series:

	R_1	R_2	R_3
20(*S*)-protopanaxadiol:	-H	-H	-H
ginsenoside Rh2:	-Glc	-H	-H
chikusetsusaponin FK4 (**4**):	-Glc$\overset{2}{-}$Glc $\vert^{6}$ Xyl	-H	-Glc$\overset{6}{-}$Ara (*f*)
chikusetsusaponin FK5 (**5**):	-Glc$\overset{2}{-}$Glc $\vert^{6}$ Xyl	-H	-Glc$\overset{6}{-}$Xyl
chikusetsusaponin FK_6 (**6**):	-Glc$\overset{2}{-}$Glc $\vert^{6}$ Xyl	-H	-Glc
chikusetsusaponin FK_7 (**7**):	-Glc$\overset{2}{-}$Glc	-Glc	-H
ginsenoside Rb3 (**9**):	-Glc$\overset{2}{-}$Glc	-H	-Glc$\overset{6}{-}$Xyl
ginsenoside Rc (**10**):	-Glc$\overset{2}{-}$Glc	-H	-Glc$\overset{6}{-}$Ara (*f*)
ginsenoside Rd:	-Glc$\overset{2}{-}$Glc	-H	-Glc
chikusetsusaponin VI (**11**):	-Glc$\overset{2}{-}$Glc $\vert^{6}$ Xyl	-H	-Glc$\overset{6}{-}$Glc

(B)-series:

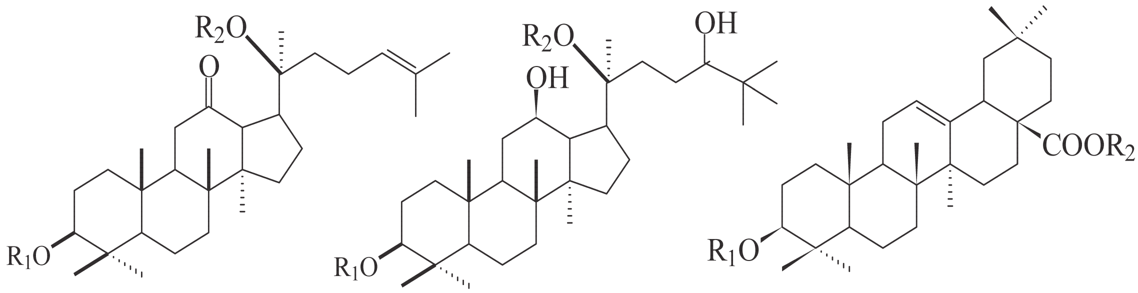
	R_1	R_2	R_3
20(*S*)-protopanaxatriol:	-H	-H	-H
chikusetsusaponin FK1(**1**)	-Glc$\overset{2}{-}$Rha	-Glc	-H
ginsenoside Re (**12**):	-Glc$\overset{2}{-}$Rha	-H	-Glc
ginsenoside Rg1 (**13**):	-Glc	-H	-Glc
pseudo-ginsenoside RS1 (**14**)	-Glc$\overset{2}{-}$Rha $\vert^{6}$ Ac	-H	-Glc
notoginsenoside R1 (**15**)	-Glc$\overset{2}{-}$Xyl	-H	-Glc
floralquinquenoside E (**16**)	-Glc$\overset{2}{-}$Rha	-H	-Glc$\overset{6}{-}$Xyl
chikusetsusaponin L5 (**17**)	-H	-H	-Glc$\overset{6}{-}$Ara(*p*)$\overset{4}{-}$Xyl
chikusetsusaponin L10 (**18**)	-H	-Glc	-H

Chart 1-1. Structures of Saponins from the Fruits of *Panax japonicus* C. A. Meyer

I-1-2. 竹節人参 Panacis Japonici Fructus (1-2) 果實

* New Triterpenoid Saponins from Fruits Specimen of *Panax japonicus* Collected in Kumamoto and Miyazaki Prefectures (1)

** Kouichi Yoshizaki and Shoji Yahara: *Chem. Pharm. Bull.* **60**(3) 354-362 (2012)



C- series **D- series** **E-series**

(C)-series:

	R_1	R_2
chikusetsusaponin FK2 (**2**):	-Glc$\overset{2}{-}$-Glc	-Glc
chikusetsusaponin FK3 (**3**):	-Glc$\overset{2}{-}$ Glc, $^{6}|$ Xyl	-Glc

(D)-series:

	R_1	R_2
vina-ginsenoside RI3:	-Glc$\overset{2}{-}$-Glc	-Glc
chikusetsusaponin FM1 (**8**):	-Glc$\overset{2}{-}$-Glc	-Glc--Xyl

(E)-series:

	R_1	R_2
chikusetsusaponin IVa (**19**)	-GlcUA	-Glc
chikusetsusaponin V (**20**)	-GlcUA-$\overset{2}{-}$Glc	-Glc

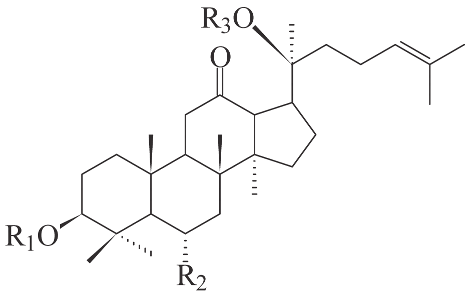
* Glc: β–D-glucopyranosyl, Xyl:β–D-xylopyranosyl, Ara(f): α–L-arabinofuranosyl, Ara(p): α–L-arabinopyranosyl, Rha: α–L-rhamnopyranosyl, GlcUA: β–D-glucopyranosiduronic

Chart 1-2. Structures of Saponins from the Fruits of *Panax japonicus* C. A. Meyer

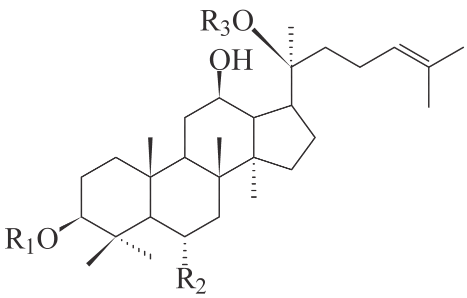
I-1-2. 竹節人參 Panacis Japonici Fructus (2-1) 果實

* New Triterpenoid Saponins from Fruit Specimens of *Panax japonicus* Collected in Toyama Prefecture and Hokkaido (2)

** Kouichi Yoshizaki, Morikazu Murakami, Hiroharu Fujino, Naotoshi Yoshida, and Shoji Yahara: *Chem. Pharm. Bull.* **60**(6) 728-735 (2012)



A-series



B-series

A-series:

	R_1	R_2	R_3
12-oxo-20(*S*)-protopanaxatriol :	-H	-OH	-H
ginsenoside Rh8 (1):	-H	-OH	-Glc
chikusetsusaponin FT1(**1**):	-H	-OH	-Glc$\overset{6}{--}$Ara(*p*)
chikusetsusaponin FH1 (**5**):	-H	-OH	-Glc$\overset{6}{--}$Ara(*f*)
chikusetsusaponin LT8:	-Glc	-H	-Glc
chikusetsusaponin FT4 (**4**):	-Glc$\overset{6}{--}$Xyl	-H	-Glc
chikusetsusaponin LN4 (**12**):	-Glc$\overset{6}{--}$Xyl	-H	-Glc$\overset{6}{--}$Ara(*p*)
chikusetsusaponin FK2 (**10**):	-Glc$\overset{2}{--}$Glc	-H	-Glc
chikusetsusaponin FK3 (**11**):	-Glc$\overset{2}{--}$Glc |6 Xyl	-H	-Glc
chikusetsusaponin FT2 (**2**):	-Glc$\overset{2}{--}$Glc |6 Xyl	-H	-Glc$\overset{6}{--}$Glc
chikusetsusaponin FT3 (**3**):	-Glc Glc	-H	-Glc$\overset{6}{--}$Ara(*p*)
chikusetsusaponin FH2 (**6**):	-Glc--Glc |6 Xyl	-H	-Glc$\overset{6}{--}$Ara(*f*)

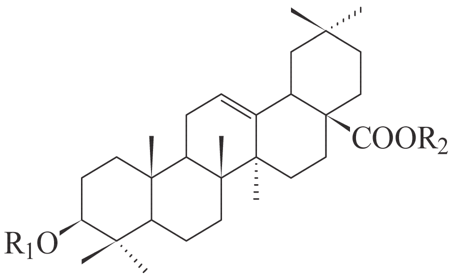
B-series:

	R_1	R_2	R_3
ginsenoside Re (**7**):	-H	-O--Glc$\overset{2}{--}$Rha	-H
ginsenoside Rh2 :	-Glc	-H	-H
chikusetsusaponin FK4 (**8**)	-Glc--Glc |6 Xyl	-H	-Glc$\overset{6}{--}$Ara(*f*)
chikusetsusaponin FK5 (**9**)	-Glc--Glc |6 Xyl	-H	-Glc$\overset{6}{--}$Xyl

I-1-2. 竹節人参 Panacis Japonici Fructus (2-2) 果實

* New Triterpenoid Saponins from Fruit Specimens of *Panax japonicus* Collected in Toyama Prefecture and Hokkaido (2)

** Kouichi Yoshizaki, Morikazu Murakami, Hiroharu Fujino, Naotoshi Yoshida, and Shoji Yahara: *Chem. Pharm. Bull.* **60**(6) 728-735 (2012)



C-series

C-series

	R_1	R_2
28-desglucosyl-chikusetsusaponin IVa (**13**):	-GlcUA	-H
chikusetsusaponin IVa (**14**):	-GlcUA	-Glc
chikusetsusaponin V (**15**):	-GlcUA$\overset{2}{-}$-Glc	-Glc

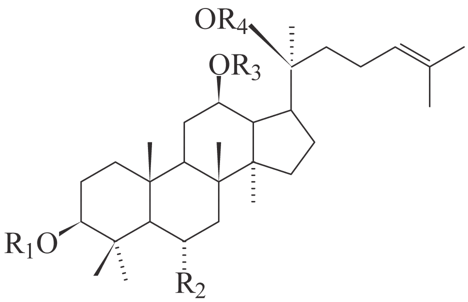
* Glc: β–D-glucopyranosyl, Ara(p): α–L-arabinopyranosyl, Ara(f): α–L-arabinofuranosyl, Xyl: β–D-xylopyranosyl, Rha: α–L-rhamnopyranosyl, GlcUA: β–D-glucopyranosiduronic acid

Chart 1. Structures of Saponins from the fruits of *Panax japonicus* C. A. Meyer

I-1-3. 竹節人參 Panacis Japonici Folium-1 (葉類)

* Four New Triterpenoid Saponins from the Leaves of *Panax japonicus* Grown in Southern Miyazaki Prefecture (4)

** Kouichi Yoshizaki, Hari Prasad Devkota, and Shoji Yahara: *Chem. Pharm. Bull.* **61**(3) 273-278 (2013)



	R_1	R_2	R_3	R_4
ginsenoside Rb3 (**5**):	-Glc^{2}--Glc	-H	-H	-Glc^{6}--Xyl
ginsenoside Rc (**6**):	-Glc^{2}--Glc	-H	-H	-Glc^{6}--Ara(*f*)
ginsenoside Rd (**7**):	-Glc^{2}--Glc	-H	-H	-Glc
chikusetsusaponin FK6 (**20**):	-Glc^{2}--Glc ^{6}| Xyl	-H	-H	-Glc
chikusetsusaponin FK7 (**21**):	-Glc^{2}--Glc	-H	-Glc	-H
20(*S*)-protopanxatriol:	-H	-OH	-H	-H
ginsenoside Ia:	-Glc	-OH	-H	-Glc
vina-ginsenoside R4:	-Glc	-OH	-H	-H
chikusetsusaponin LM4 (**2**):	-Glc^{2}--Glc	-OH	-Glc	-H
chikusetsusaponin LM5 (**3**):	-Glc^{2}--Glc	-OH	-H	-Glc^{6}--Ara(*f*)
chikusetsusaponin LM6 (**4**):	-Glc^{2}--Glc	-OH	-H	-Glc^{6}--Ara(*p*)^{4}--Xyl
ginsenoside F1:	-H	-OH	-H	-Glc
chikusetsusaponin LM3 (**1**):	-H	-OH	-H	-Glc^{6}--Ara(*f*)^{3}--xyl
ginsenoside Re (**8**):	-H	-O--Glc^{2}--Rha	-H	-Glc
ginsenoside Rg1 (**9**):	-H	-O--Glc	-H	-Glc
ginsenoside F3 (**10**):	-H	-OH	-H	-Glc^{6}--Ara(*p*)
ginsenoside F5 (**11**):	-H	-OH	-H	-Glc^{6}--Ara(*f*)
ginsenoside F6 (**12**):	-H	-O--Glc	-H	-Glc^{6}--Ara(*f*)
chikusetsusaponin L5 (**15**):	-H	-OH	-H	-Glc^{6}--Ara(*p*)^{4}--Xyl
chikusetsusaponin L10 (**18**):	-H	-OH	-Glc	-H
chikusetsusaponin LM1 (**23**):	-H	-OH	-H	-Glc^{6}--Xyl
chikusetsusaponin LM2 (**24**):	-H	-OH	-H	-Glc^{6}--Xyl^{3}--Xyl

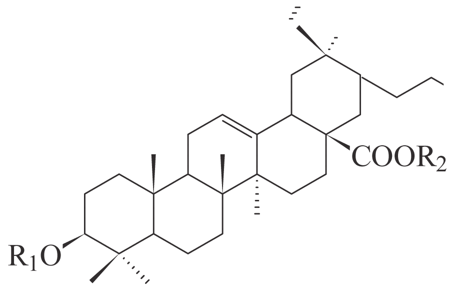
*Glc: β–D-glucopyranosyl, Xyl: β–D-Xylopyranosyl, Ara(f): α–L-arabinofuranosyl, Ara(p): α–L-arabinopyranosyl, Rha: α–L-rhamnopyranosyl, GlcUA: β–D-glucopyranosiduronic acid

Chart 1. Structures of Saponins obtained from the Leaves of *Panax japonicus* C. A. Meyer

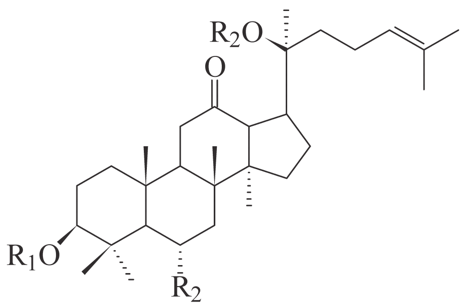
I-1-3. 竹節人参 Panacis Japonici Folium-2 (葉類)

* Four New Triterpenoid Saponins from the Leaves of *Panax japonicus* Grown in Southern Miyazaki Prefecture (4)

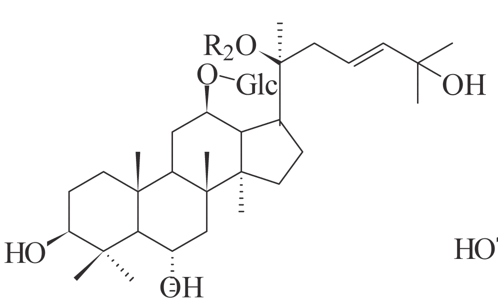
** Kouichi Yoshizaki, Hari Prasad Devkota, and Shoji Yahara: *Chem. Pharm. Bull.* **61**(3) 273-278 (2013)



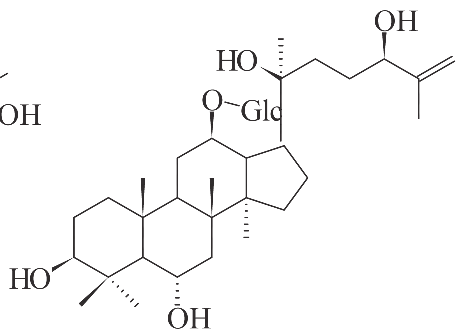
	R_1	R_2
chikusetsusaponin IVa (**13**):	-Glc	-Glc
chikusetsusaponin V (**14**):	-GlcUA$\overset{2}{-}$-Glc	-Glc



	R_1	R_2	R_3
chikusetsusaponin FK2 (**19**):	-Glc$\overset{2}{-}$-Glc	-H	-Glc
chikusetsusaponin FT1 (**22**):	-H	-OH	-Glc$\overset{6}{-}$-Ara(p)



chikusetsusaponin L9a (**16**)

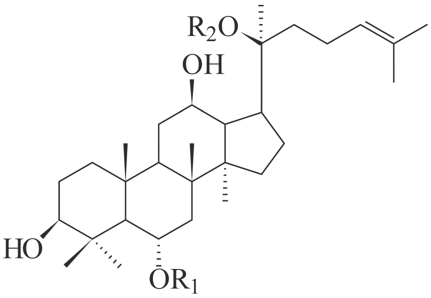


chikusetsusaponin L9bc (**17**)

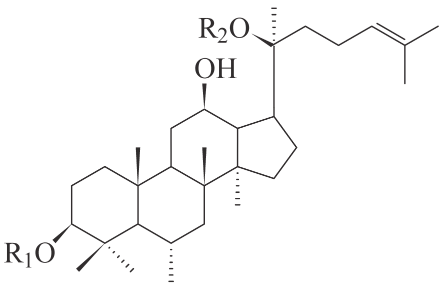
Chart 2. Structures of Saponins from the Leaves of *Panax japonicus* C. A. Meyer

I-1-4. 竹節人參 Satsuma-ninjin (*Panax japonicus*)(薩摩人參)

* Kouichi Yoshizaki, Hari Prasad Devkota, Hiroharu Fujino, and Shoji Yahara: *Chem. Pharm. Bull.* **61**(3) 344-350 (2013)

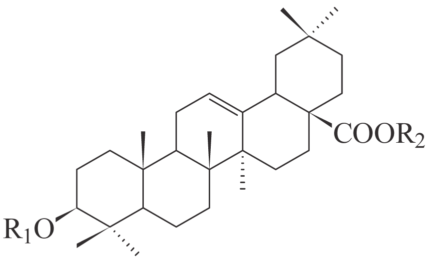


	R1	R2
ginsenoside Re (**6**):	-Glc^{2}--Rha	-Glc
ginsenoside Rg1 (**7**):	-Glc	-Glc
ginsenoside Rg2 (**8**):	-Glc^{2}--Rha	-H
ginsenoside Rh1 (**9**):	-Glc	-H
notoginsenoside R1 (**10**):	-Glc^{2}--Xyl	-Glc
notoginsenoside R2 (**11**):	-Glc^{2}--Xyl	-H



	R1	R2
20(S)-protopanaxadiol:	-H	-H
ginsenoside F2:	-Glc	-Glc
chikusetsusaponin Ia:	-Glc	-H
	|6	
	Xyl	
chikusetsusaponin VII (**1**):	-Glc	-Glc^{6}--Glc
	|6	
	Xyl	
ginsenoside Rb1 (**2**):	-Glc^{2}--Glc	-Glc^{6}--Glc
ginsenoside Rb3 (**3**):	-Glc^{2}--Glc	-Glc^{6}--Xyl
ginsenoside Rc (**4**):	-Glc^{2}--Glc	-Glc^{6}--Ara(f)
ginsenoside Rd (**5**):	-Glc^{2}--Glc	-Glc
notoginsenoside Fe (**12**):	-Glc	-Glc^{6}--Ara(f)
chikusetsusaponin III:	-Glc^{2}--Glc	-H
	|6	
	Xyl	
chikusetsusaponin VI (**16**):	-Glc^{2}--Glc	-Glc^{6}--Glc
	|6	
	Xyl	
chikusetsusaponin FK6 (**17**):	-Glc^{2}--Glc	-Glc
	|6	
	Xyl	
gypenoside XVII (**18**):	-Glc	-Glc^{6}--Glc

* Glc: β–D-glucopyranosyl,
Xyl: β–D-xylopyranosyl,
Ara(f): α–L-arabinofuranosyl,
Ara(p): α–L-arabinopyranosyl,
Rha: α–L-rhamnopyranosyl,
GlcUA: β–D-glucopyranosiduronic acid.

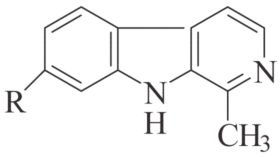


	R1	R2
chikusetsusaponin IVa (**13**):	-GlcUA	-Glc
chikusetsusaponin IV (**14**)	-GlcUA^{4}--Ara(p)	-Glc
chikusetsusaponin V (**15**):	-GlcUA^{2}--Glc	-Glc
28-desglucosyl-chikusetsusaponin IV (**19**):	-GlcUA^{4}--Ara(p)	-H
zingibroside R1 (**20**):	-GlcUA^{2}--Glc	-H

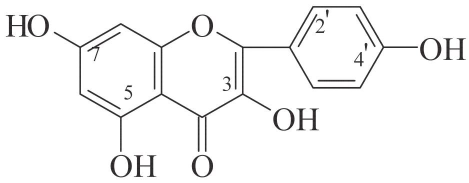
Chart I. Structures of Saponins from the Underground-Parts of " Satsuma-ninjin"

I-2. Tribuli Fructus 蒺藜子

* *Tribulus terrestris* L. [Leguminosae]



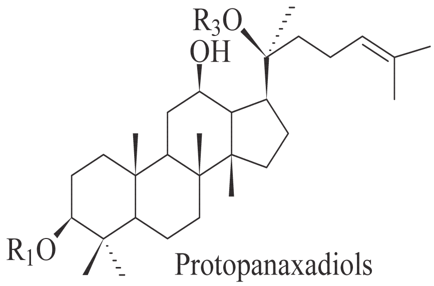
harmine R=OCH_3
harmane R=H



kaempferol

I-6-1-1 三七 *Panax notoginseng* (Burkill) F. H. Chen [Araliaceae]

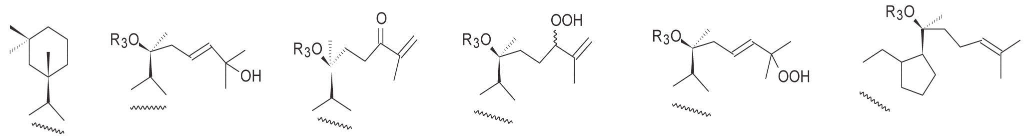
* Chong-Zhi Wang, Eryn MeEntee, Sheila Wicks, Ji-An Wu, Chun-Su Yuan
J Nat Med, **60**(2), 97-106 (2006)



Protopanaxadiols

	R_1	R_2		R_1	R_2
ginsenosideRa3	-glc2-1glc	-glc6-1xyl	notoginsenoside Fa	-glc2-1glc2-1xyl	-glc6-1glc
ginsenoside Rb1	-glc2-1glc	-glc6-1glc	notoginsenoside Fc	-glc2-1glc2-1xyl	-glc6-1xyl
ginsenoside Rb2	-glc2-1glc	-glc6-1ara(pyr)	notoginsenoside Fe	-glc	-glc6-1ara(fur)
ginsenoside Rb3	-glc2-1glc	20(S), -H	notoginsenoside I	-glc2-1glc	(S6)a, glc6-1glc
20(R)-ginsenoside Rg3	-glc2-1glc	20(R), -H	notoginsenoside K	-glc2-1glc	(S5)a, -glc6-1glc
20((R)-ginsenoside Rh2	-glc	20(R), -H	notoginsenoside L	-glc 2-1xyl	-glc6-1glc
ginsenoside F2	-glc	-glc	notoginsenoside O	-glc	-glc 6-1xyl3-1xyl
ginsenoside Mc	-H	-glc6-1ara(fur)	notoginsenoside P	-glc	-glc6-1xyl4-1xyl
notoginsenoside R4	-glc2-1glc	-glc6-1glc6-1xyl	notoginsenoside Q	-glc2-1glc2-1-xyl	-glc6-1xyl4-1xyl
notoginsenoside R7	-glc	(S1)a	notoginsenoside S	-glc 2-1glc2-1xyl	-glc6-1ara(fur)5-1x
notoginsenoside A	-glc2-1glc	(S2)a, glc6-1glc	notoginsenoside T	-glc2-1glc2-1xyl	-glc6-1glc3-1xyl
notoginsenoside B	-glc2-1glc	(S3)a, glc6-1glc	gypenoside IX	-glc	-glc6-1xyl
notoginsenoside C	-glc2-1glc	(S4)a, glc2-1glc	gypenoside XV	-xyl2-1glc	-glc6-1xyl
notoginsenoside D	-glc2-1glc2-1xyl	-glc6-1glc6-1xyl	gypenoside XVII	-glc	-glc6-1glc
notoginsenoside E	-glc2-1glc	(S5)a, -glc	quinquenoside R1	-glc2-1glc6-Ac	-glc6-1glc

* (S1)-(S6): side chain structures

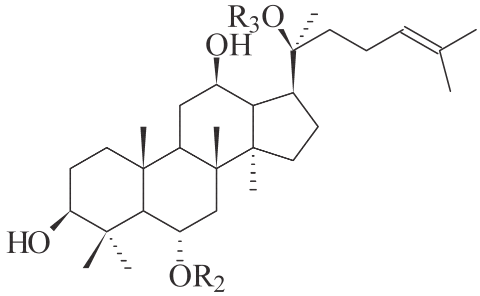


S1 S2 S3 S4 S5 S6

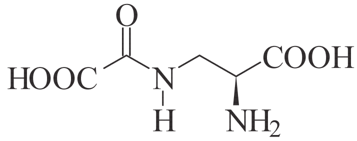
Fig.1. Protopanaxadiol group Saponins Isolated from *Panax notoginseng*

I-6-1-2. 三七 *Panax notoginseng* (Burkill) F. H. Chen [Araliaceae]

* Continued (1-6-1-1)



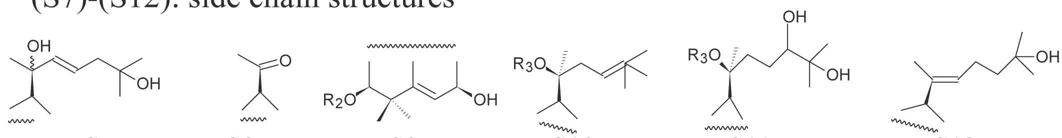
Protopanaxatriols



L-dencichin

	R_2	R_3
ginsenoside Re	-glc2-1rha	-glc
ginsenoside Rf	-glc2-1glc	-H
20-glucoginsenosede Rf	-glc2-1glc	-glc
ginsenoside Rg1	-glc	-glc
ginsenoside Rg2	-glc2-1rha	-H
ginsenoside Rh1	-glc	-H
ginsenoside F1	-H	-glc
notoginsenoside R1	-glc2-1xyl	-glc
notoginsenoside R2	-glc2-1xyl	-H
notoginsenoside R3	-glc	-glc6-1glc
notoginsenoside R6	-glc	-glc6-1α−glc
notoginsenoside R8	-glc	(S7)a, 20(S)
notoginsenoside R9	-glc	(S7)a, 20(R)
notoginsenoside R10	-glc	(S8)a
notoginsenoside G	(S9)a, -glc2-1glc	-glc
notoginsenoside H	-glc2-1xyl	(S10)a, glc
notoginsenoside J	-glc	(S11)a, glc
notoginsenoside M	-glc6-1glc	-glc
notoginsenoside N	-glc4-1α−glc	-glc
sanchinoside B1	-glc	(S12)a

* (S7)-(S12): side chain structures

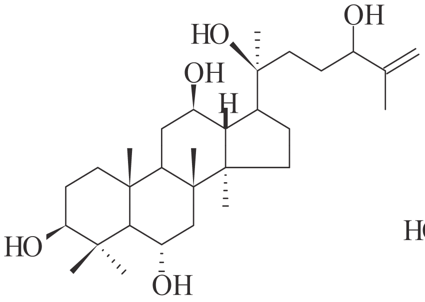


S7 S8 S9 S10 S11 S12

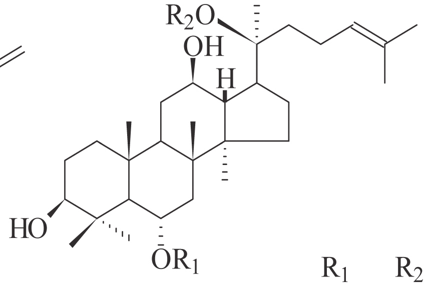
Fig. 2. Protopanaxatriols group Saponins isolated from *Panax notoginseng*

I-6-2-1. 三七 New Damarane-type Saponin from roots of *Panax notoginseng*

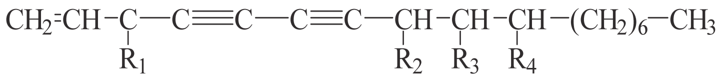
* Nozomi Komakine, Mamoru Okasaka, Yoshihisa Takaishi, Kozuyoshi Kawazoe, Kotaro Murakami, Yoshihide Yamada: *J Nat Med,* **60**(2), 135-137 (2006)



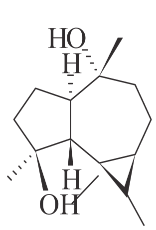
1: notopanaxoside A



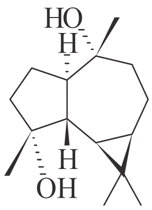
	R_1	R_2
2: ginsenoside Rh1	glc	H
3: ginsenoside Rg1	glc	glc



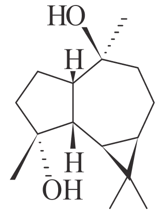
	R_1	R_2	R_3	R_4	
4:	-H, -OH	-OH	-O-		PQ-2
5:	-H, -OH	-H	-OH	-OH	panaxytriol
6:	-H, -OH	-H	-OH	-Cl	panaxydol chlorohydrine
7:	-H, -OH	-H	-O-		panaxydol
8:	-H, -OH			-OH	(8*E*)-1,8-heptadecadiene-4,6-diyene-3,10-diol
9:	=O	-H	-O-		ginsenoyne E
10:	-H, -OH	-H			panaxynol



11

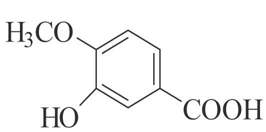


12

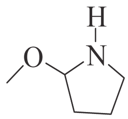


13

11: aromadendrane-7α,11α-diol
12: aromadendrane-7β,11α–diol
13: alloaromadendrane-7α,11α–diol
16: 3-hydroxy-4-methoxybenzoic acid
19: 2-methoxy-1H-pyrrole



16



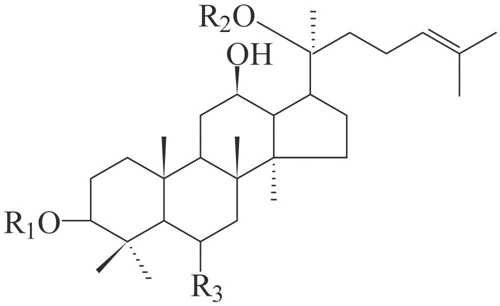
19

14: spathulenol
15: 1β,6α–dihydroxyeudesm-4(15)ene
17: cinnamic acid
18: *p*-coumaric acid 4-hydroxyphenyl ester
20: succinic acid methyl ester
21: succinic acid monobutyl ester
22: 5-hydroxy-3-methoxy dec-2-enoic acid
23: β–sitosterol-β–D-glucoside

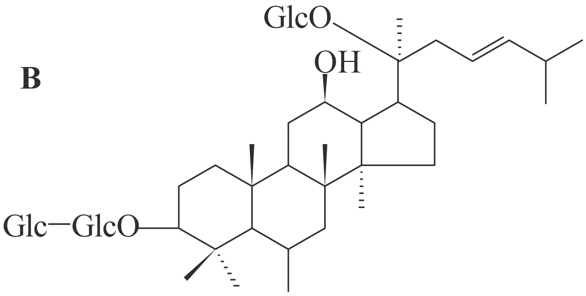
I-6-2-2. 三七 *Panax notoginseng*

* Katsuko Komatsu et al: *J Nat Med* **67**(2) 339-349 (2013)

A



B



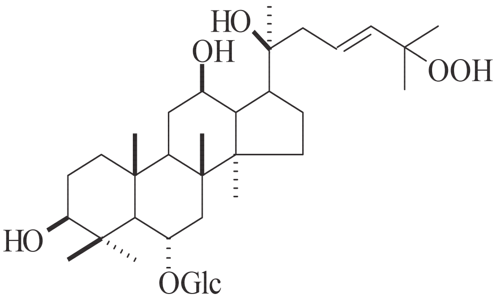
Saponins	R_1	R_2	R_3
Notoginsenoside R1	-H	-Glc	-O-Glc2-Xyl
Notoginsenoside R4	-Glc2-Glc	- Glc6-Glc6-Xyl	-H
Notoginsenoside Fa	-Glc2-Glc2-Xyl	-Glc2-Glc	-H
Ginsenoside Rg1	-H	-Glc	-O-Glc
Ginsenoside Re	-H	-Glc	-O-Glc2-Rha
Ginsenoside Rb1	-Glc2-Glc	-Glc6-Glc	-H
Ginsenoside Rd	-Glc2-Glc	-Glc	-H
Ginsenoside Rf	-H	-H	-O-Glc2-Glc
Ginsenoside Rg2	-H	-H	-O-Glc2-Rha
Ginsenoside Rh1	-H	-H	-O-Glc
Notoginsenoside K			

Fig. 1. **A** Structures of the ten listed assayed saponins
B Structures of notoginsenoside K

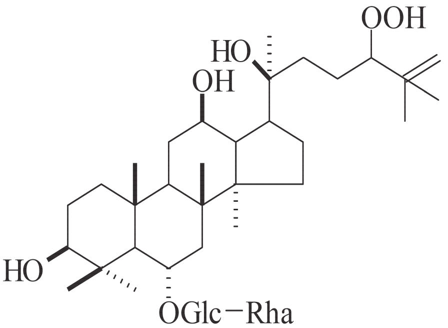
I-7-1. 西洋参花 American Ginseng, *Panax quinquefolium* L. [Araliaceae]

* New Dammarane-Type Triterpene Glycosides from Flower Buds

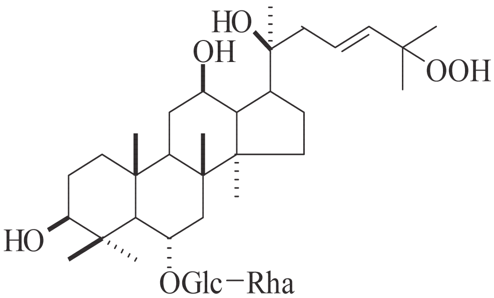
** Seikou Nakamura, Sachiko Sugimoto, Hisashi Matsuda, and Masayuki Yoshikawa: *Chem. Phaem. Bull.* **55**(9), 1342-1348 (2007)



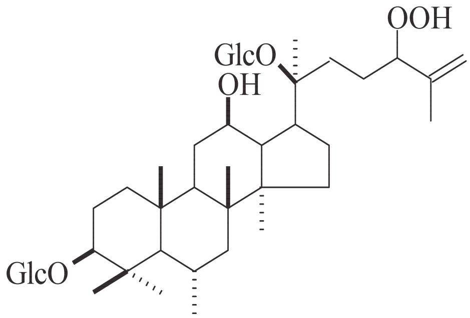
floralquinquenoside A (**1**)



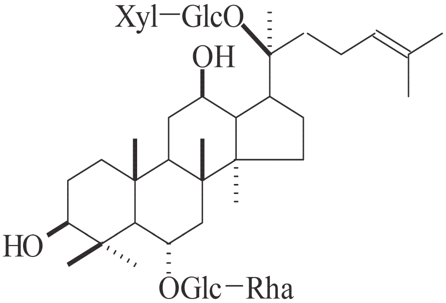
floralquinquenoside B (**2**)



floralquinquenoside C (**3**)



floralquinquenoside D (**4**)



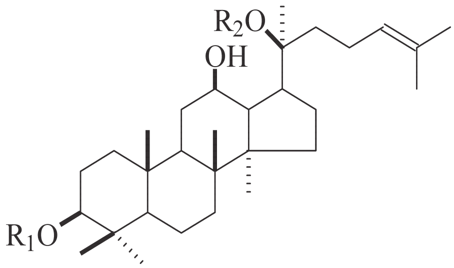
floralquinquenoside E (**5**)

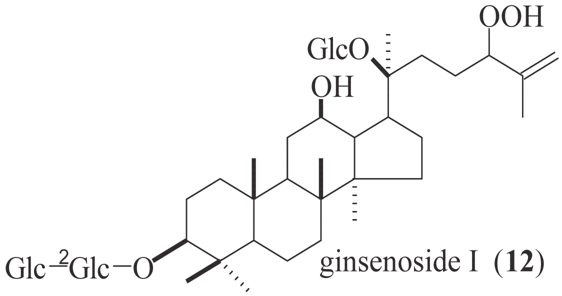
* Glc: β–D-glucopyranosyl
Rha: α–L-rhamnopyranosyl
Xyl: β–D-xylopyranosyl

Chart I. Structures of New Floralquinquenosides **1**--**5** from the Flower Buds of *Panax quinquefolium*

I-7-2. 西洋参花 American Ginseng, *Panax quinquefolium* L. [Araliaceae]

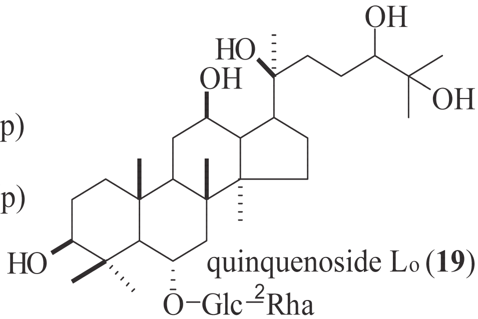
(* Continued I-7-1)



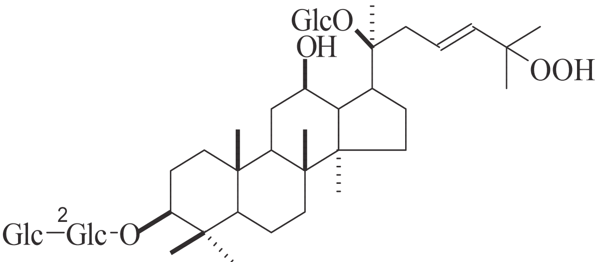


ginsenoside I (**12**)

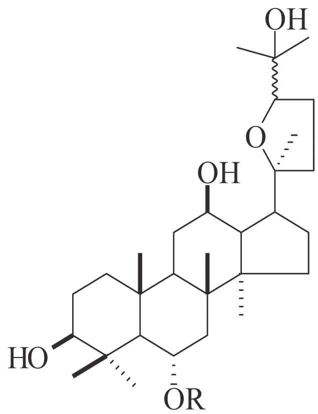
	R_1	R_2
ginsenoside Rb3 (**6**)	Glc-2-Glc	Glc-6-Xyl
ginsenoside Rd (**7**)	Glc-2-Glc	Glc
ginsenoside Rs1 (**8**)	Glc-2-Glc-6-Ac	Glc-6-Ara(p)
pseudo-ginsenoside Rc1 (**9**)	Glc-2-Glc	Glc
pseudo-ginsenoside F8 (**10**)	Glc(6-Ac)-2-Glc	Glc-6-Ara(p)
quinquenoside III (**11**)	Glc(6-Ac)-2-Glc	Glc



quinquenoside L0 (**19**)



notoginsenoside E (**13**)

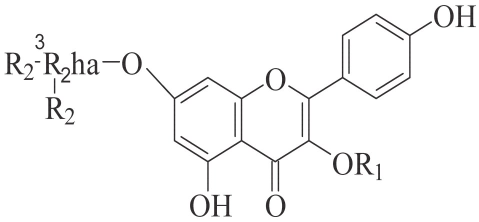


	R	
pseudo-ginsenoside RT5 (**20**)	Glc	24(*R*)
pseudo-ginsenoside F11 (**21**)	Glc-2-Rha	24(*R*)
24(*S*)-pseudo-ginsenoside F11 (**22**)	Glc-2-Rha	24(*S*)
24(*R*)-vina ginsenoside R1 (**23**)	Glc(6-Ac)-2-Rha	24(*R*)

Chart 2. Structure of Known Compounds from the Flower-Buds of *Panax quinquefolium*

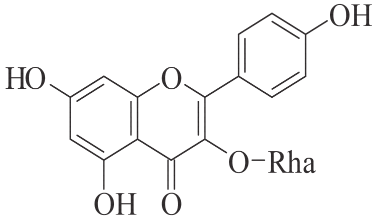
1-7-3. 西洋參花 American Ginseng, *Panax quinquefolium* L. [Araliaceae]

* (Contined 1-7-2)



kaempferol 3-***O***- D-sophoroside-
7-***O***- L-rhamnopyranoside (**24**)
kaempferol 7-***O***-(2,3-di-*E*-*P*-coumaroyl-
L-rhamnopyranoside (**25**)

R_1	R_2
Glc--Glc	H
H	*E*-*p*-coumaroyl



kaempferol 3-***O***- L-rhamnopyranoside (**26**)

Chart 3. Structures of Flavonoids from the Flower-Buds of *Panax quinquefolium*

II
・
精神・神經系疾患

018 ～ 032

II-1 ～ II-6

△：成分未表示

018-1-1. 防己 Fangchi Rhizoma

* *Sinomenium acutum* Rehder et Wilson [Menispermaceae]
Stephania tetrandra S. Moore
Cocculus trilobus Thunb.
Arstolochia heterophylla Hemsl. [Aristolochiaceae]
A. fanchi Wu

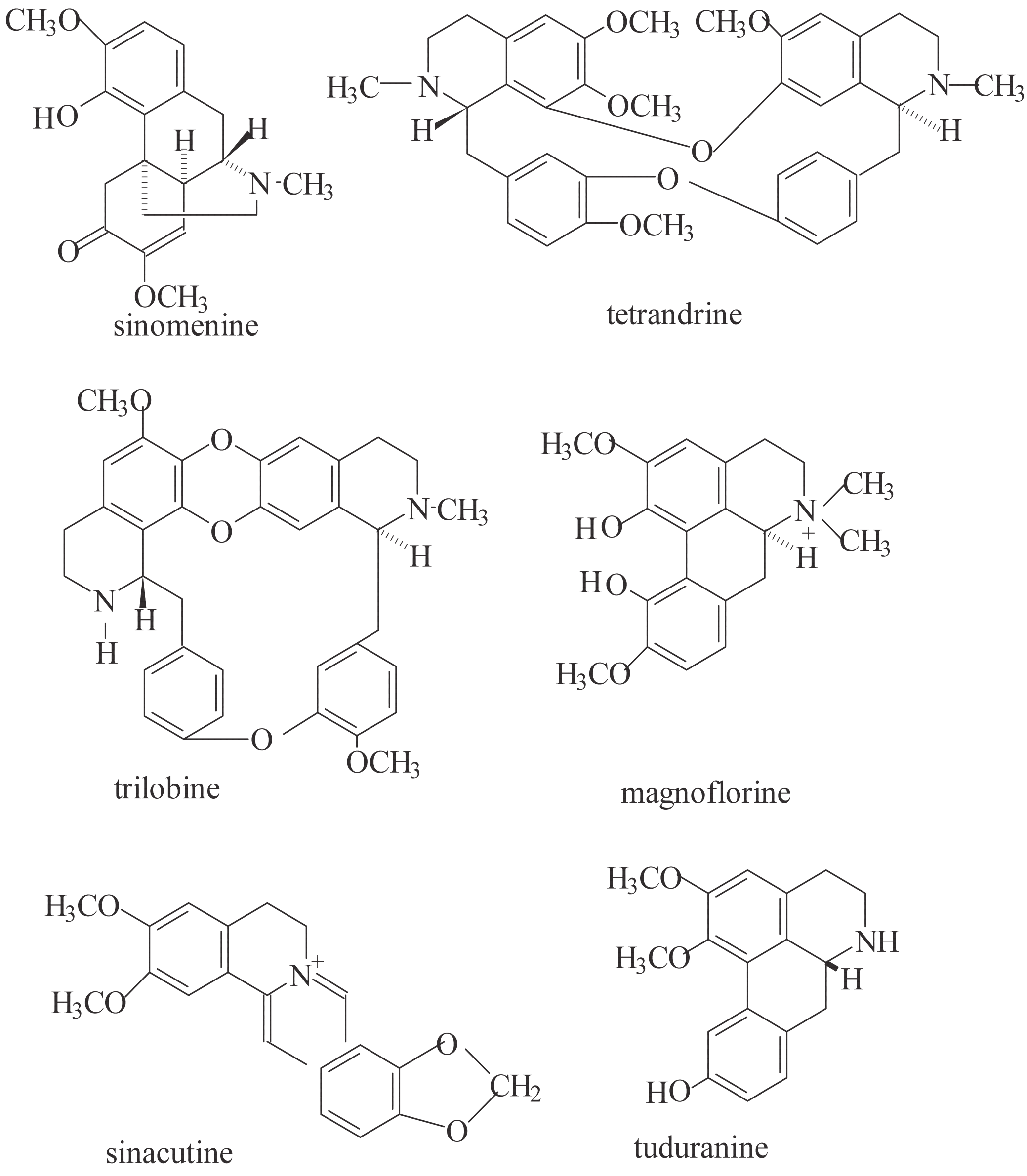
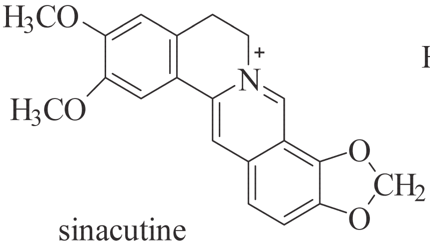


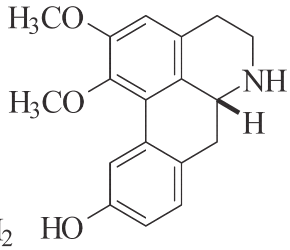
Fig. 1. Chemical strucures of compounds

018-1-2-1. 防己 Stephaniae Tetrandrae Rhizoma

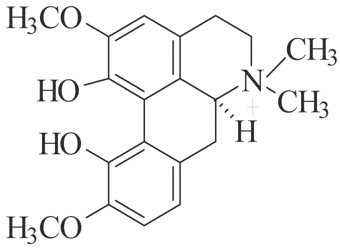
*1) *Stephania tetrandra* S. Moore [Menispermaceae]



sinacutine



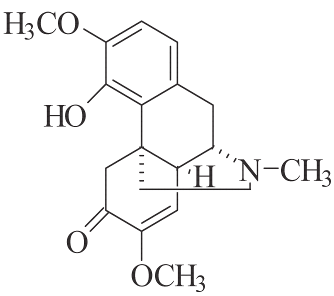
tuduranine



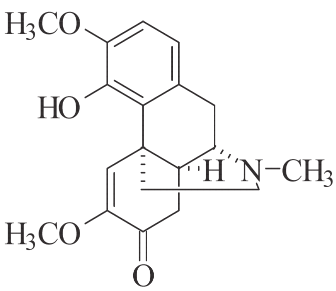
magnoflorine

018-1-2-2. 防己 Sinomeni Acutumi Rhizoma

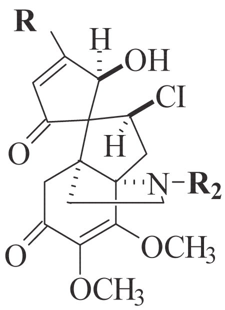
*2) Sinomenium acutum Rehder et Wilson [Menispermaceae]



sinomenine



isosinomenine



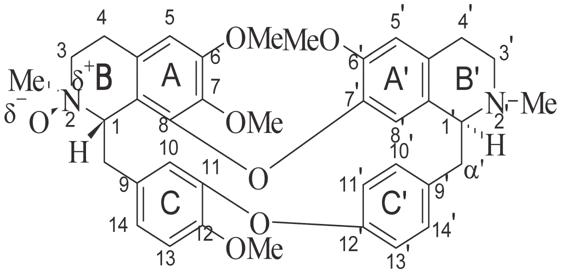
	R_1	R_2
acutumine	OCH_3	CH_3
acutumidine	H	H

018–2–1. 粉防己 Fen-Fang-Ji

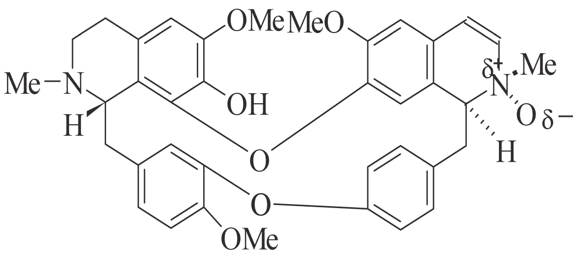
* *Stephania tetrandra* S. Moore [Menispermaceae]

** T. Ogino, T. Sato, H. Sasaki, K. Sugama, M. Okada, H. Mitsuhashi, M. Maruno: *Natural Medicines* **52**(2), 124-129 (1998)

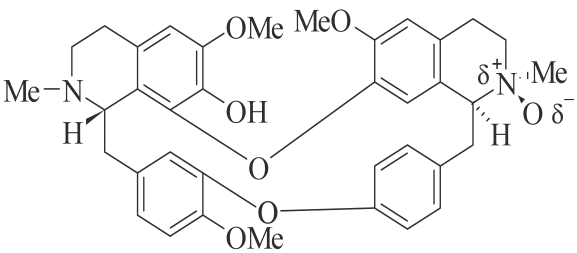
New Bis-benzylisoquinoline (BBI) Alkaloids:



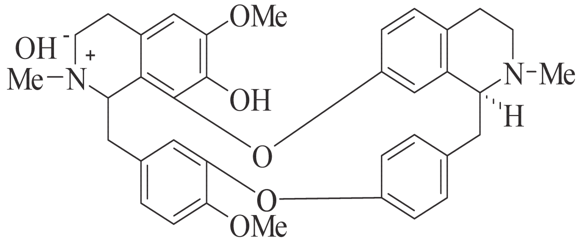
fenfangjine A



fenfangjine B



fenfangjine C



fenfangjine D

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*Known Alkaloids:

Tetrandrine, Fangchinoline, Tetrandrine 2'-N-α-oxide, Tetrandrine 2'-N-β-oxide, Cycleahomine, 2'-N-α-methyltetrandrinium chloride, Cycleanine, Stephenanthrine, Argentinine

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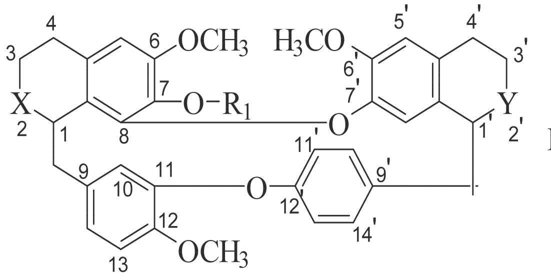
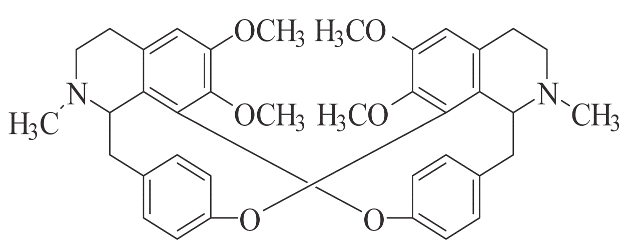
018-2-2. 粉防己 Stephaniae Tetrandrae Radix

* *Stephania tetrandra* S. Moore [Menispermaceae]

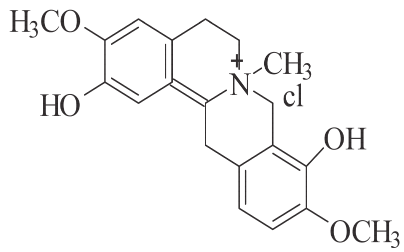
** Tsutsumi T, et al: *Biol Pharm Bull,* **26**(3), 313-317 (2003)



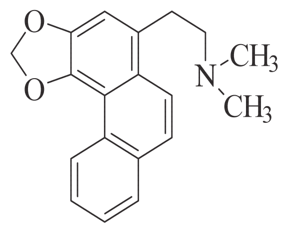
	R1	X	Y
fangchinoline	H	$N-CH_3$	$N-CH_3$
tetrandrine	CH_3	$N-CH_3$	$N-CH_3$
cycleanorine	CH_3	$N-CH_3$	NH
tetrandrine 2'−N−β− oxide (TD-7)	CH_3	$N-CH_3$	$N-CH_3$ ↓ O
tetrandrine 2'−α oxide (TD-11)	CH_3	$N-CH_3$	$N-CH_3$ ↓ O
tetrandrine 2−N−α oxide (TD-10)	CH_3	$N-CH_3$ ↓ O	$N-CH_3$
fangchinoline 2'−N−α oxide (TD−8)	H	$N-CH_3$	$N-CH_3$ ↓ O
2'-N-norfangchinoline (TD-28)	H	N-CH3	NH
2'-N-methyltetrandinium -chloride (TD-13)	CH3	N-CH3	$\overset{+}{N}$--CH3 cl- CH3



cycleanine (TD-14)



cyclanoline chloride



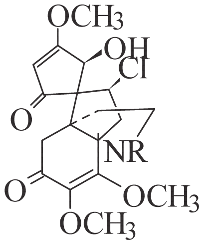
stephenanthrine

* Chemical Structures of Used Alkaloids Isolated from Stephaniae Tetrandrae Radix

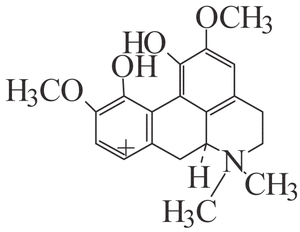
018-3-1. 防己 Fangchi Rhizoma

* Separation and Identification of the Constituents in Fangchi Rhizoma of Different Origins

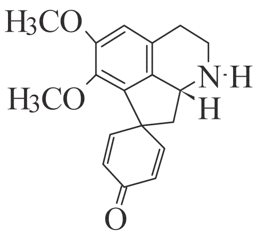
** Wen-Ying, Huang, Cheng-Hung Su and Shuenn-Jyi Sheu:
Journal of Food and Drug Analysis, 14(4) 357-367 (2006)



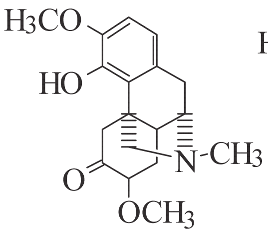
acutumidine (**1**): R=H
acutumine (**5**): R=CH_3



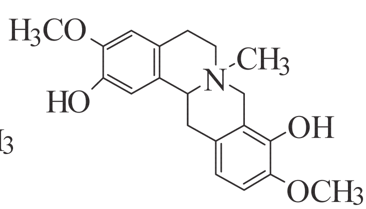
magnoflorine (**2**)



stepharine (**3**)



sinomenine (**4**)

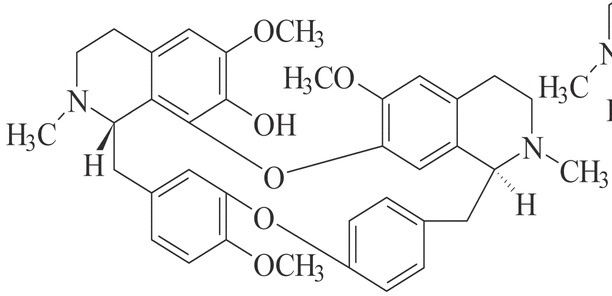


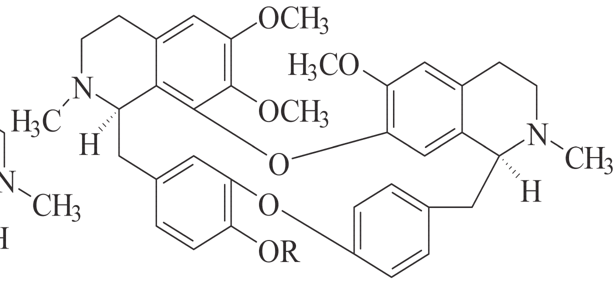
cyclanoline (**6**)

Figure 1-1. Structures of the fifteen constituents

018-3-2. 防己 Fangchi Rhizoma

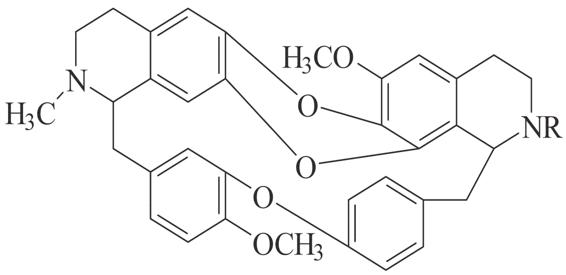
* (Continued 018-3-1)



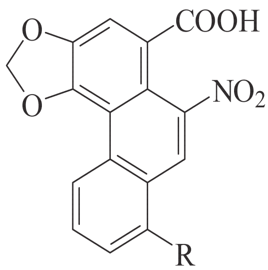


fangchinoline (**7**): R=H
tetrandine (**9**): R=CH_3

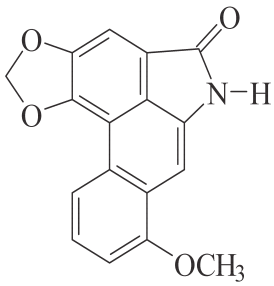
berbamine (**8**): R=H
isotetrandine (**10**): R=CH_3



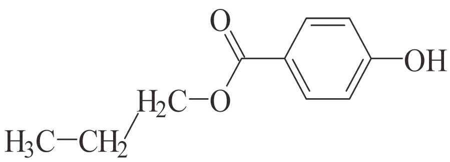
trilobine (**11**): R=H
isotrilobine (**15**): R=CH_3



aristolochic acid II (**12**): R=H
aristolochic acid I (**13**): R=OCH_3



aristololactam (**14**)

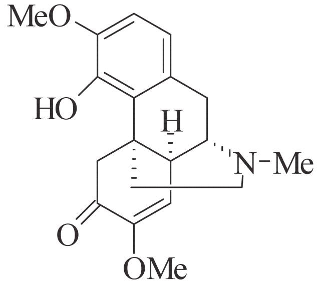


propyl 4-hydroxybenzoate

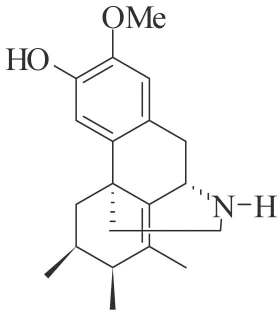
Figure 1-2. Structures of the fifteen constituents

018-4. 木防己 *Cocculus trilobus* (Thunb.) DC [Menispermaceae]

* Itokawa H, Tsuruoka S, Takeya K, Sonobe T, Kosemura S. Hamanaka T: *Chem. Pharm. Bull.* **35**, 1660-1662 (1987); Lee K-H: *J Nat Med,* **62**(3), 271 (2008)



Sinococuline



Isocinococuline

Fig. 1. Compounds from *Cocculus trilobus*

018-5. 防己Classification of Fangchi Radix Samples by Multivariate Analysis

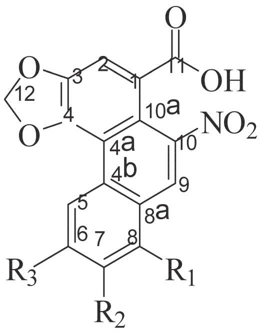
* Ching-Ching Chuang, Cheng-Hung Su, Wen-Ying Huang and Shuenn-Jyi Sheu:
Journal of Food and Drug Analysis, **16**(5), 48-56 (2008)

Fangchi Radix	Compound
Stephania acutum:	acutumidine (1), magnoflorine (2), stepharine (3), sinomenine (4), acutumine (5)
S. tetrandia:	sinomenine (4), cyclanoline (6), fangchinoline (7), berbamine (8), tetrandrine (9), isotetrandrine (10),
Aristolochia fangchi:	magnoflorine (2), aristolochic acid II(12), aristolochic acid I (13), aristololactam (14).
Cocculus orbiculatus:	magnoflorine (2), sinomenine (4), trilobine (11), isotrilobine (15)

018-6. 廣防已 Fangchi Rhizoma

* Two New Aristolochic Acid Derivatives from "Guang Fang Ji" , the Roots of *Aristolochia fangchi* Y. C. Wu ex L. D. Chou et S. M. Hwang [Aristolochiaceae]

** Yu Cai and Tian-Ge Cai: *Chem. Pharm. Bull.* **58**(8) 1093-1095 (2010)

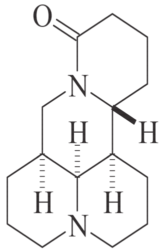


No.	Compound name	R_1	R_2	R_3
1	Aristolochic acid A	OCH_3	H	H
2	Aristolochic acid B	H	H	H
3	Aristolochic acid C	H	H	OH
4	Aristolochic acid F	H	OH	H
5	Aristolochic acid G	OH	H	OH

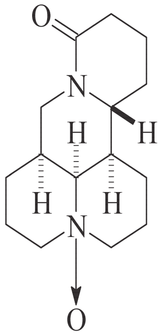
Fig. 1. Chemical Structures of Compounds **1**--**5**

019. 山豆根 Sophorae Subprostratae Radix

* *Sophora subprostrarta* Chun et T. Chen [Leguminosae]

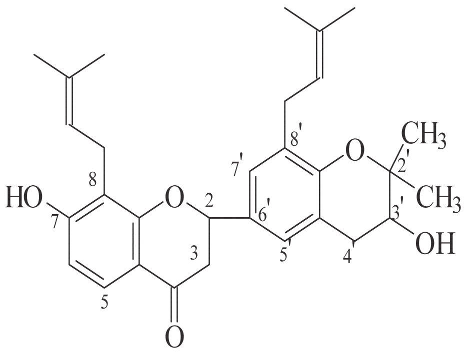


(+)-matrine

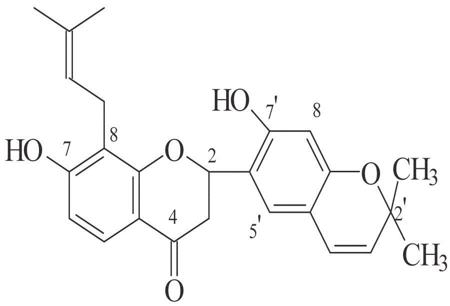


(+)-oxymatrine

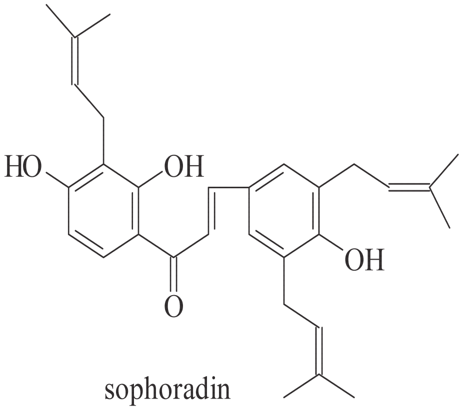
* sophoradin, sophoranone, sophoradochromene, sophoranochromene, *l*-maackianin, genistein, daidzein:
Komatsu et al : *Chem Pharm Bull,* **21,** 177, 1192, 1436 (1973)



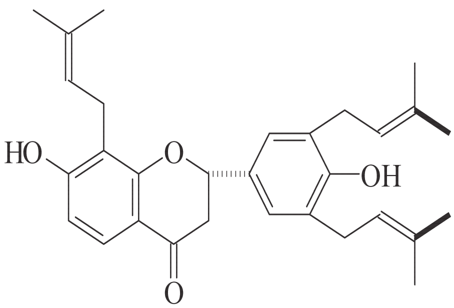
2-{3'-hydroxy-2',2'-dimethyl-8'-(3-methyl-2-butenyl)}chroman-6'-yl-7-hydroxy-8-(3-methyl-2-butenyl)-chroman-4-one



2-{7'-hydroxy-2',2'-dimethyl-(2H-benzopyran)-6'-yl}-7-hydroxy-8-(3-methyl-2-butenyl)-chroman-4-one



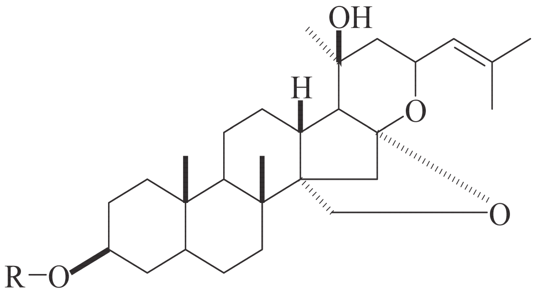
sophoradin

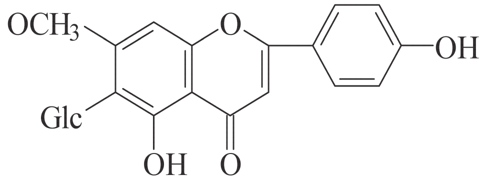


sophoranone

020-1. 酸棗仁 Zizyphi Spinosi Semen

* *Zizyphus jujuba* Mill. var. *spinosa* Hu
(=*Z.* *vulgaris* Lamark. var. *spinosa* Bunge) [Rhamnaceae]





jujuboside: R=Ara $\overset{3}{—}$ Glc $\overset{2}{—}$ Xyl
|2
Rha

swertisin

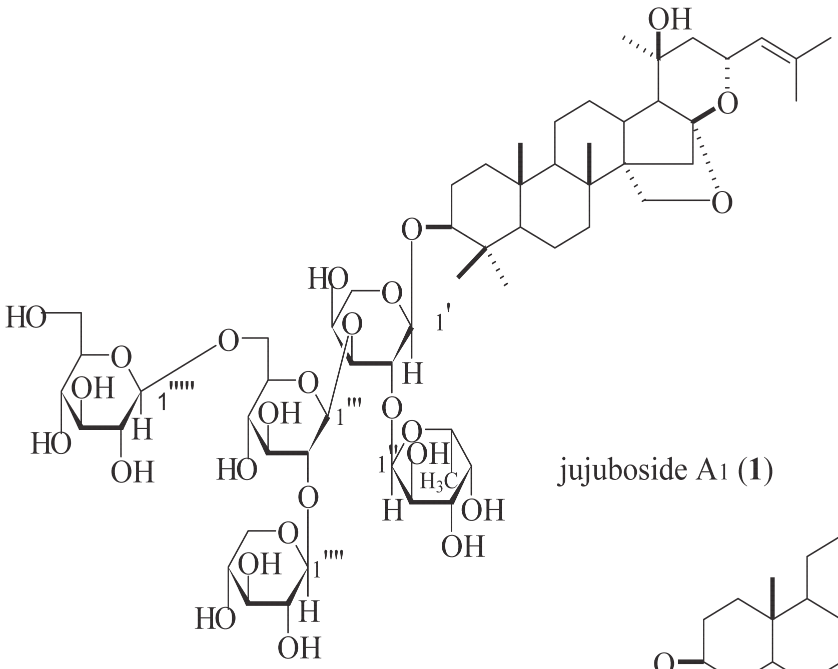
jujubogenin:R=H $\xrightarrow{\text{hydrolysis}}$ emblin-lactone

020-2-1. 酸棗仁 Zizyphi Spinosi Semen

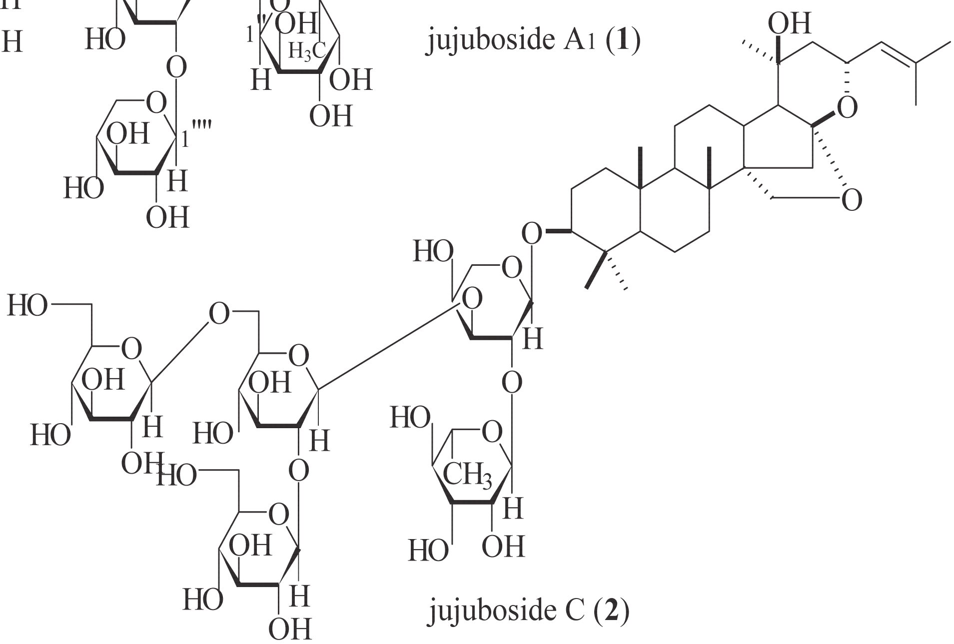
**Zizyphus jujuva* Mill. var. *spinosa* Hu

(=*Z. vulgaris* Lamark. var. *spinosa* Bunge) [Rhamnaceae]

** M. Yoshikawa, T. Murakami, A. Ikebata, S. Wakao, N. Murakami, H. Matsuda, and J. Yamahara, *Chem Pharm Bull*: **45** (7), 1186-1192 (1997)



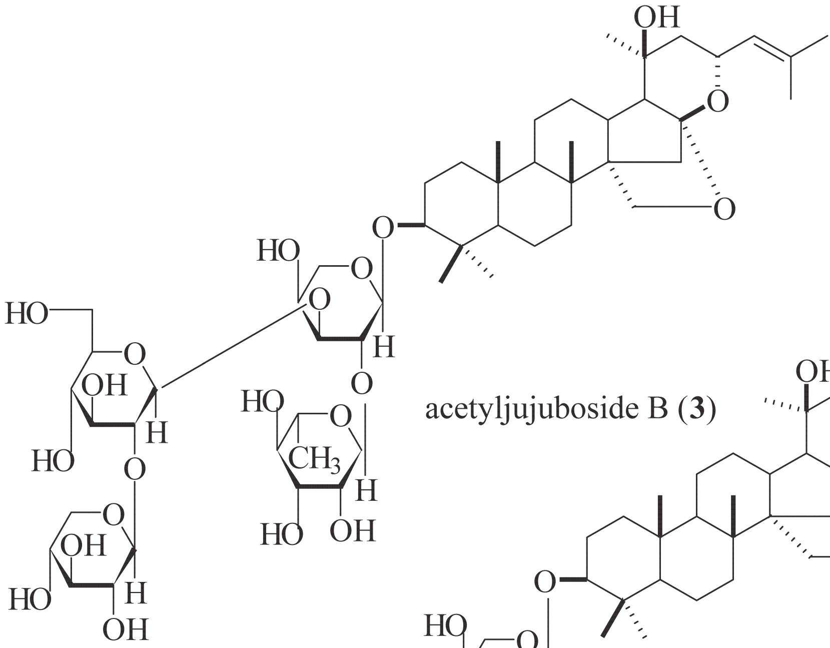
jujuboside A1 (**1**)



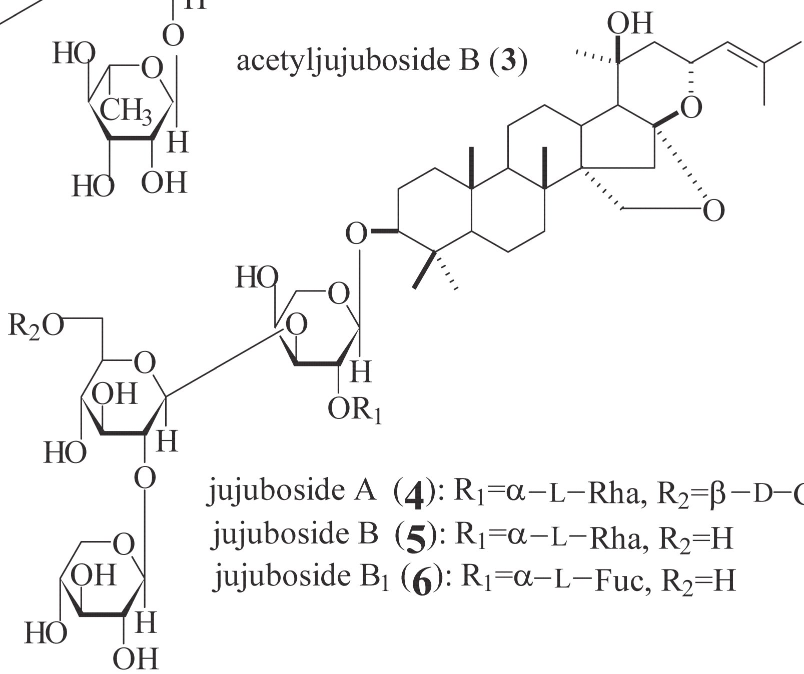
jujuboside C (**2**)

020-2-2. 酸棗仁 Zizyphi Spinosi Semen

*(Continued 020-2-1)



acetyljujuboside B (**3**)



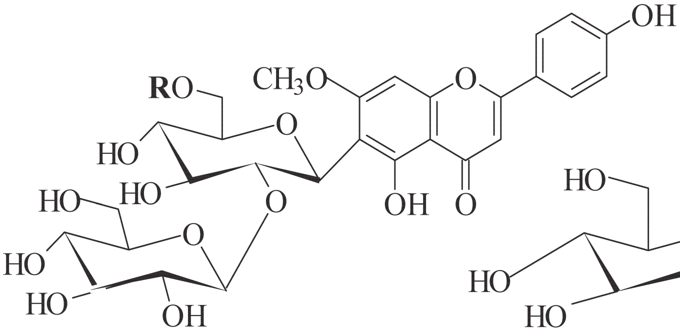
jujuboside A (**4**): R_1=α−L−Rha, R_2=β−D−Glc

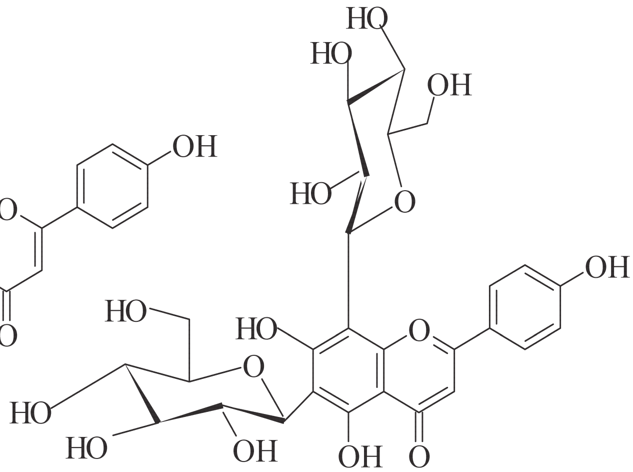
jujuboside B (**5**): R_1=α−L−Rha, R_2=H

jujuboside B_1 (**6**): R_1=α−L−Fuc, R_2=H

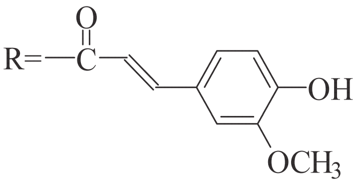
020-2-3. 酸棗仁 Zizyphi Spinosi Semen

* (Continued 020-2-2)

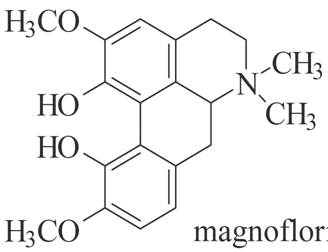




spinosin (**7**): R=H
6''-feruloylspinosin (**8**):



vicenin-2 (**9**)



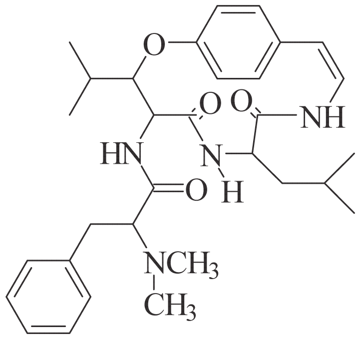
magnoflorine (**10**)

020-3. 酸棗仁 Zizyphi Spinosi Semen

* *Zizyphus jujuba* Mill. var. *spinosa* [Rhamnaceae]

** Yuan Ma, Huishan Han, Jae Soon Eun, Hyung-Chua Kim,
J in-Tae Hong, and Ki-Wan Oh:
Biol. Pharm. Bull. **30**(9), 1748-1753 (2007)

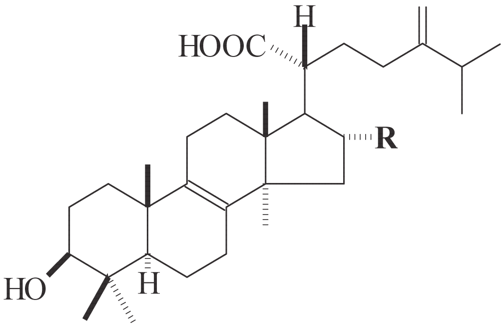
*** Yuan Ma, Sung-Ryui Yun, Sang-Yoon Nam, Yun-Bae Kim,Jin-Tae Hong,
Younghoon Kim, Heesuk Choi, Kinam Lee, and Ki-Wan Oh:
Biol. Pharm. Bull. **31**(9), 1749-1754 (2008)



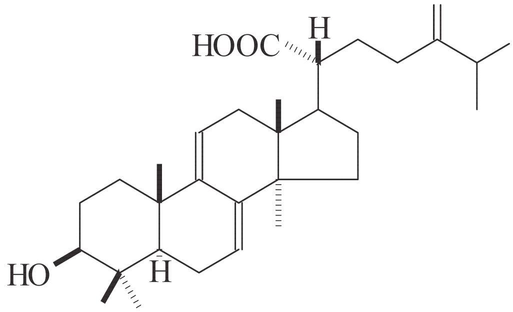
Sanjoinine A

021-1. 茯苓 Hoelen (Poria)

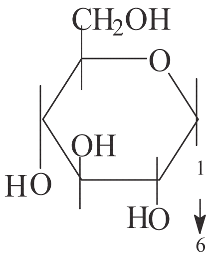
* *Poria cocos* Wolf [Polyporaceae]



eburicoic acid R = H
tumulosic acid R = OH



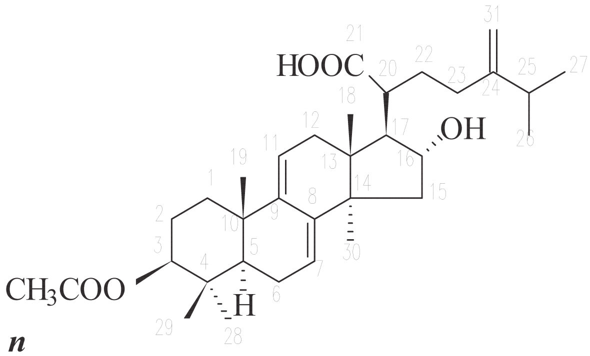
dehydroeburicoic acid



[-*β*–D-Glc*p*-(1-3)-*β*–D-Glc*p*-(1-3)-] ***n***

Glc*p*: Glucopyranose n =180-200

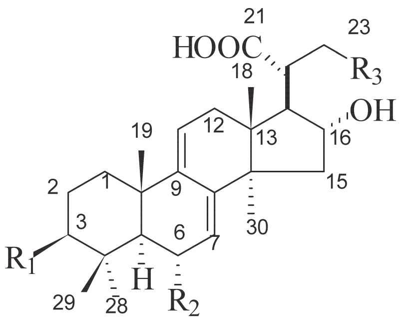
pachyman

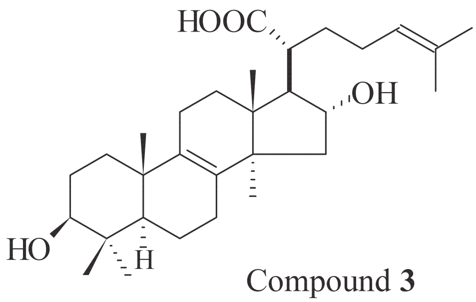


dehydropachymic acid

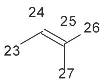
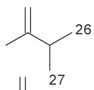
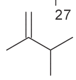
021-2. 茯苓 Hoelen (Poria)

* *Poria cocos* Wolf (=*Pachyma hoelen* Rumphius) [Polyporaceae]
** Nukaya H, Yamashiro H, Fukazawa H, Ishida H, and Tsuji K: *ChemPharm Bull,* **44**(4), 847-849 (1996)
*** Inhibitors of TPA-Induced Mouse Ear Edema from Hoelen





Compound **3**
Dehydrotumulosic acid

	R_1	R_2	R_3
7,9 diene type			
Compound 1:	OH	H	
Compound 2:	CH_3COO	OH	
Compound 4:	OH	H	

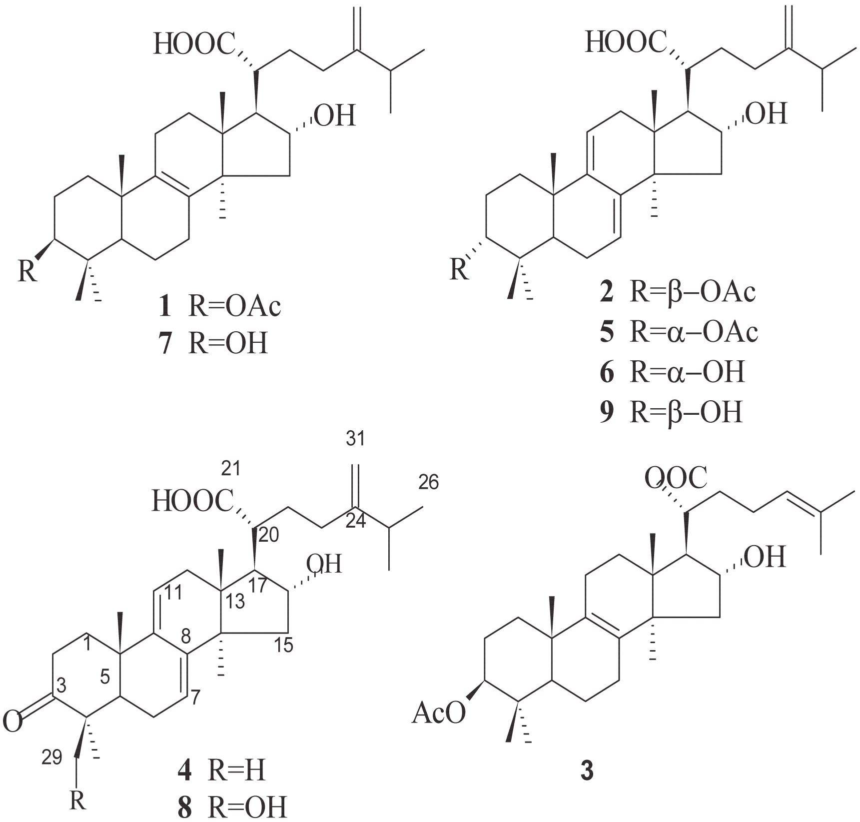
Compound **1**: 3β–,16α–dihydroxylanosta-7,9(11), 24-trien-21-oic acid
Compound **2**: 16α–hydroxydehydropachymic acid
Compound **4**: 16α–hydroxytrametenolic acid
* TPA (12-*O*-tetradecanoylphorbol 13-acetate)

021-3. 茯苓 Hoelen (Poria)

* *Poria cocos* Wolf [Polyporaceae]

** Lanostane-Type Triterpenes

*** Liang Zhou, Yaochun Zhang, Leslie Adell Gapter, Hui Ling, Rajesh Agarwal, and Ka-yun Ng:
Chem. Pharm. Bull. **56**(10), 1459-1462 (2008)



1 R=OAc
7 R=OH

2 R=β−OAc
5 R=α−OAc
6 R=α−OH
9 R=β−OH

4 R=H
8 R=OH

3

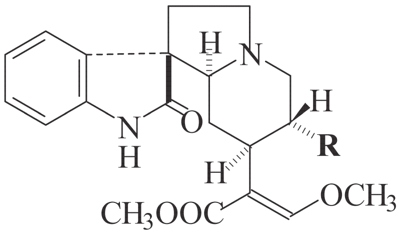
Fig. 1. Chemical Structure of Compound **1--9**

* (**1**). pacymic acid, (**2**). dehydropachymic acid, (**3**). 3-acetyloxy-16α−hydroxytrametenolide acid, (**4**). polyporenic acid C, (**5**). 3-*epi*-dehydropachymic acid, (**6**). 3-*epi*-dehydrotumulosic acid, (**7**). tumulosic acid, (**8**). **29-hydroxyporenic acid C,** and (**9**). dehydrotumulosic acid.

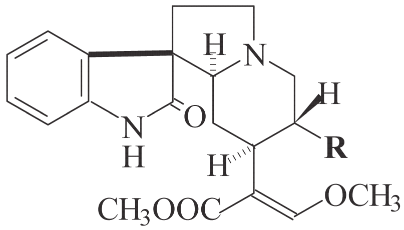
** Although none of the nine (**1** to **9**) compounds showed promising antioxidant activity.

022-1. 鈎藤鉤 Uncariae Ramulus et Uncus

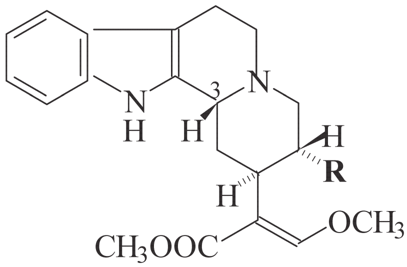
* *Uncaria sinensis* Havil.
U. *rhynchophylla* Ackson [Rubiaceae]



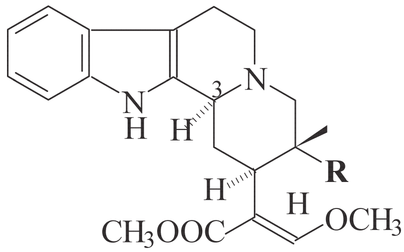
rhyncophylline R = $-CH_2-CH_3$



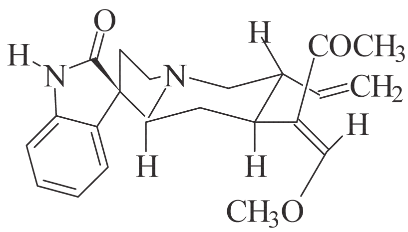
isorhyncophylline R = $-CH_2-CH_3$



hirsutine R = $-CH_2-CH_3$
hirsuteine R = $-CH=CH_2$



dihydrocorynantheine R = $-CH_2-CH_3$
corynantheine R = $-CH=CH_2$



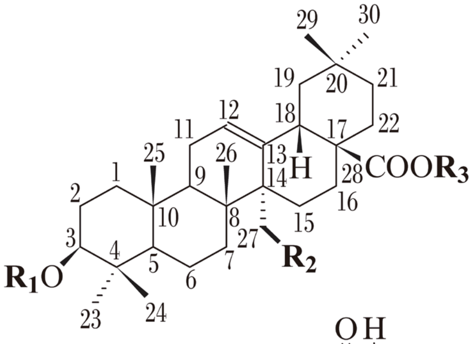
corynoxeine

* Kim et al : *Biol. Pharm. Bull.* **31**(11), 2073-2078 (2008)

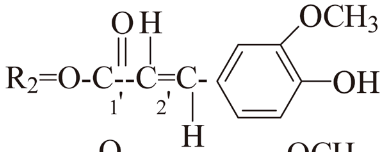
022-2. 鈎藤鈎 Uncariae Ramulus et Uncus

* *Uncaria rhynchophylla* (Miq.) Miq ex Havil [Rubiaceae]

** J.S. Lee, J. Kim, B.Y. Kim, H.S. Lee, J.S. Ahn, and Y.S. Chang, *J. Nat. Prod.* **63**, 753-756 (2000): *Bioorganic & Medicinal Chemistry Letters,* **9,** 1429-1432 (1999)

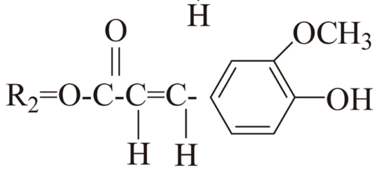


1 uncarinic acid A : R_1=H



R_3 =H

2 uncarinic acid B : R_1=H



R_3 =H

---

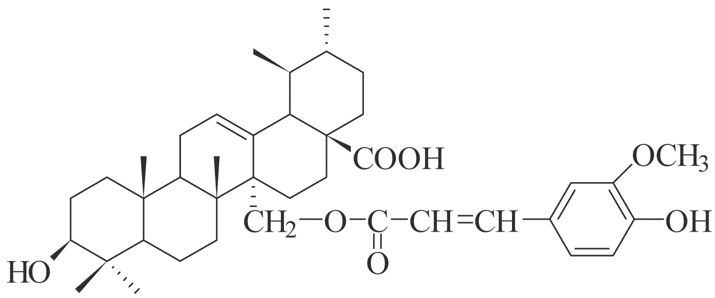
* Inhibited phospholipase PLCγ1 *in vitro* with IC_{50} values of 9.5-44.6 μM

022-3. 釣藤鉤 Uncariae Ramulus et Uncus

* *Uncaria rhynchophylla* (Miq.) Jackson [Rubiaceae]

** Triterpene esters:

*** Akemi Umeyama, Yoshinori Yahisa, Minori Okada, Eriko Okayama, Ayaka Uda, Noboru Shoji, Je-Jung Lee, Masao Takei, Toshihiro Hashimoto: *J Nat Med* **64**(4) 506-509 (2010)



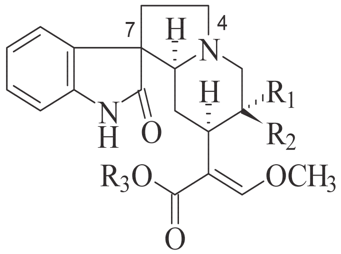
1. uncarinic acid C: *E* configuration at 2'
2. uncarinic acid D: *Z* configuration at 2'

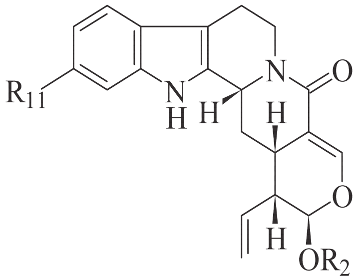
Fig. 1. Chemical structures of uncarinic acid C (**1**) and D (**2**) from *Uncaria rhynchophylla*

022-4. 鈎藤鈎 Uncariae Ramulus et Uncus

* Comparative Study of Fourteen Alkaloids from *Uncaria rhynchophylla* Hooks and Leaves Using HPLC-Diole Array Detection-Atmospheric Pressure Chemical Ionization/MS Method

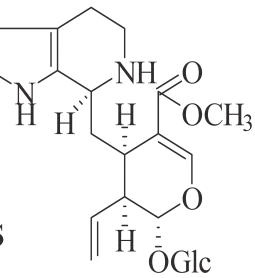
** Jialin Qu, Tianxing Gong, Bin Ma, Lin Zhang, Yoshihiro Kano, and Dan Yuan: *Chem. Pharm. Bull.* **60**(1) 23-30 (2012))





Comp.	C−7	*N*−4	R_1	R_2	R_3
DCAB	*R*	tertiary	-H	-CH=CH2	-H
DCA	*S*	tertiary	-H	-CH=CH2	-H
C	*R*	tertiary	-CH=CH2	-H	-CH3
IC	*S*	tertiary	-CH=CH2	-H	-CH3
R	*R*	tertiary	-CH2CH3	-H	-CH3
IR	*S*	tertiary	-CH2CH3	-H	-CH3
GICeA	*S*	tertiary	-CH=CH2	-H	-Glc
C-NO	*R*	*N*-oxide	-CH=CH2	-H	-CH3
IC-NO	*S*	*N*-oxide	-CH=CH2	-H	-CH3
R-NO	*R*	*N*-oxide	-CH2CH3	-H	-CH3
IR-NO	*S*	*N*-oxide	-CH2CH3	-H	-CH3

Comp.	R_1	R_2
HGVL	-OH	-Glc-Glc
VL	-H	-GLc



S

Fig. 1. Alkaloid Compounds Identified in *U. rhynchophylla* Hooks and Leaves

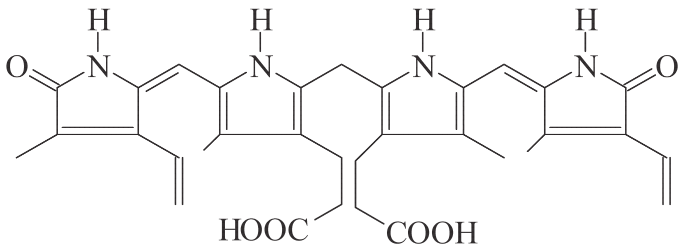
* Four oxindole alkaloids: rhybchophylline (R), isorhynchophylline (IR), corynoxeine (C) and isocorynoxeine (IC).; two glycosidic indole alkaloids, vincoside lactam (VL) and strictosidine (S).

** Ten oxindole alkaloids: 18,19-dehydrocorynoxinic acid (DCA), 18,19-dehydrocorynoxinic acid B (DCAB), isocorynoxeine N-oxide (IC-NO), corynoxeine N-oxide (C-NO), isorhyn-chophylline N-oxide (IR-NO), rhynchophylline N-oxide (R-NO).

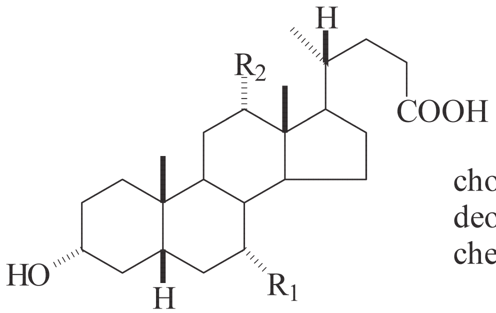
*** Four glycosidic alkaloids: 11-hydroxy-2'-*O*-D-flucopyranosyl vincoside lactam (HGVL), 22-*O*-β−D-glucopyranosyl isocorynoxeinic acid (GLCeA), S and VL.

023. 牛黃 Bezoar Bovis

* *Bos taurus* Linn'e var. *domesticus* Gmelin [Bovidae]



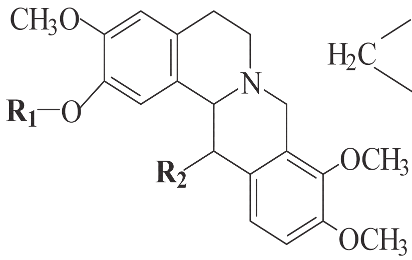
bilirubin

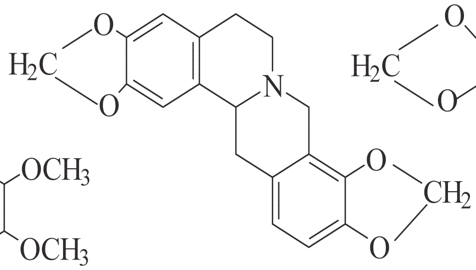


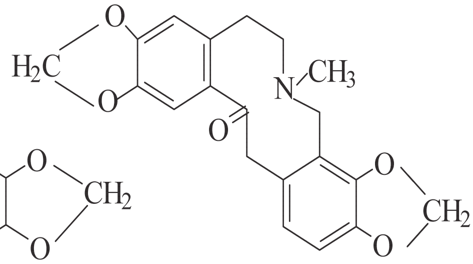
	R_1	R_2
cholic acid	OH	OH
deoxycholic acid	H	OH
chenodeoxycholic acid	OH	H

024-1. 延胡索 Corydalis Tuber

* *Corydalis yanhusuo* W.T. Wang [Papaveraceae]







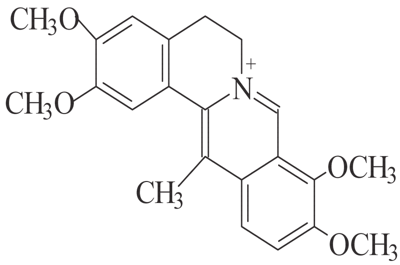
(±)-tetrahydropalmatine R_1=CH_3, R_2=H

(−)-corydaline R_1=R_2=CH_3

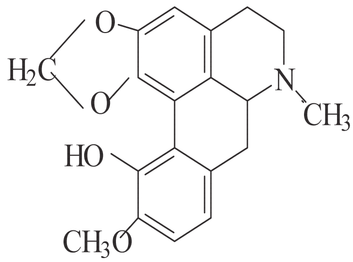
(−)-tetrahydrocolumbamine R_1=R_2=H

(±)- tetrahydrocoptisine

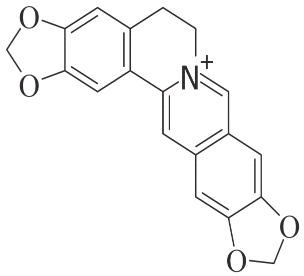
protopine



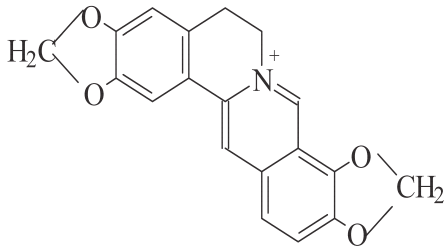
dehydrocorydaline



bulbocapnine



pseudocoptisine



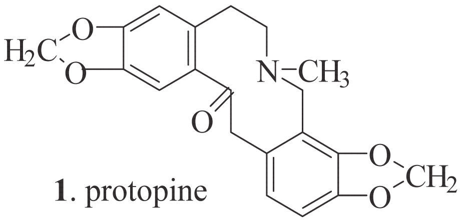
coptisine

Fig. 1. Chemical structures of compounds

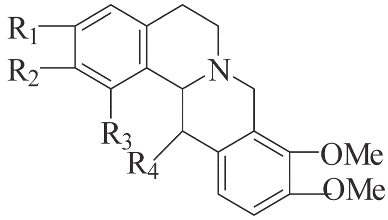
024-2. 延胡索 Corydalis Tuber (能高)

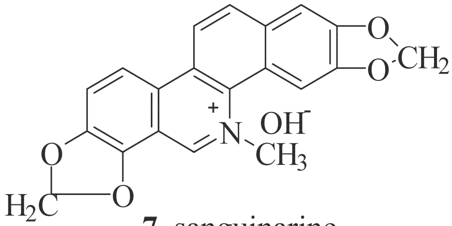
* *Corydalis nokoensis* [Papaveraceae]

** Tani C, Tagahara K, and Aratani S: *Yakugaku Zasshi,* **96**, 527 (1976)



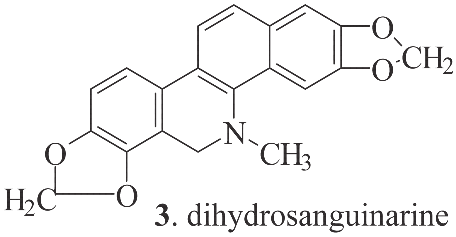
1. protopine



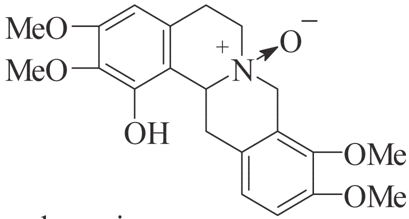


7. sanguinarine

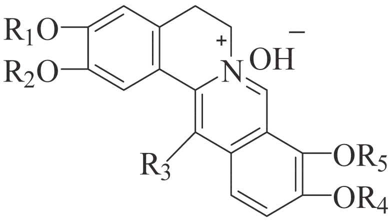
2. *dl*-tetrahydropalamatine: $R_1=R_2=OCH_3$, $R_3=R_4=H$
4. capaurine: $R_1=R_2=OCH_3$, $R_3=OH$, $R_4=H$
5. corybulbine: $R_1=OH$, $R_2=OCH_3$, $R_3=H$, $R_4=CH_3$



3. dihydrosanguinarine



6. nokoensine



* Tertiary base: 1, 2, 3, 4, 5, 6,
Quaternary base: 7, 8, 9, 10

8. palmatine: $R_1=R_2=R_4=R_5=CH_3$, $R_3=H$
9. coptisine: R_1, $R_2=R_4$, $R_5=CH_2$, $R_3=H$
10. dehydrocorybulbine: $R_2=R_3=R_4=R_5=CH_3$, $R_1=H$

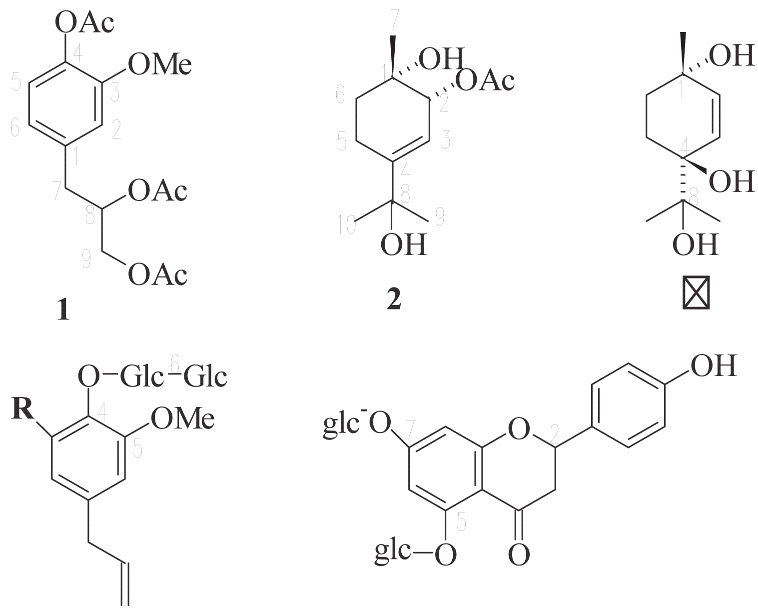
Fig. 1. Chemical structures of compounds

025-1. 細辛 Asiasari Radix

* *Asiasarum heteropoides* F. Maekawa
var. *mandshuricum* F. Maekawa [Aristolochiaceae]

** S. Yahara, K. Kato, T. Nohara : *Shoyakugaku Zasshi,* **44** (4), 331-334 (1990)

Water Soluble Portion:



4: R=H
5: R=OMe

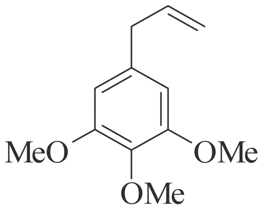
6

Fig. 1. Chemical structures of compounds **1**--**6**

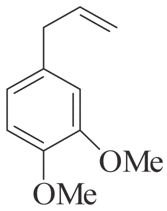
* **1**. 7-dehydroxyguaiacylglycerol triacetate
2. 1,2,8-trihydroxy- Δ2−limonene 2-acetate
3. 1,4,8-trihydroxy- Δ2-limonene
4. 4-***O***-β−D-glucopyranosyl (1➛6)-β−D-glucopyranosyl eugenol
5. 4-***O***-β−D-glucopyranosyl (1➛6)-β−D-glucopyranosyl 5-methoxyeugenol
6. 5,7-di-***O***-β−D-glucopyranosyl 2(*S*')-naringenin

025–2. 細辛 Asiasari Radix

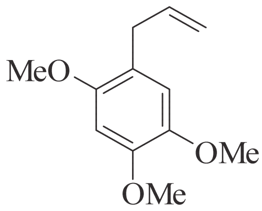
**Asiasarum heterotropoides* F. Maekawa
var. *mandshuricum* F. Maekawa [Aristolochiaceae]
** K. Hashimoto, M. Okada, M. Maruno :
Natural Medicines, **48**(1), 39-48 (1994)



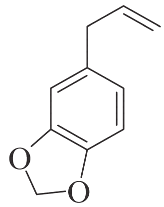
elemicin



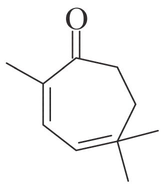
methyleugenol



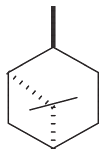
γ-asarone



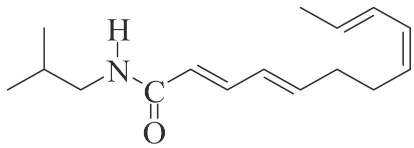
safrole



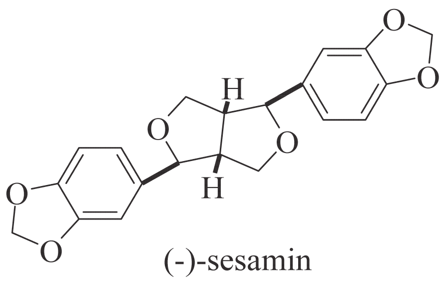
eucarvone



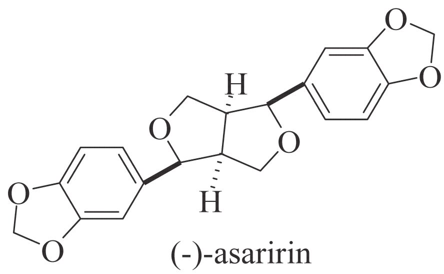
β-pinene



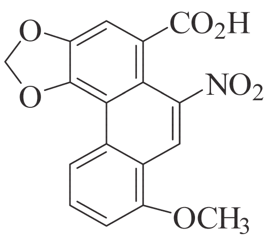
(2*E*,4*E*,8*Z*,10*E*-N-isobutyl-2,4,8,10-dodecatetraenamide)



(-)-sesamin



(-)-asaririn

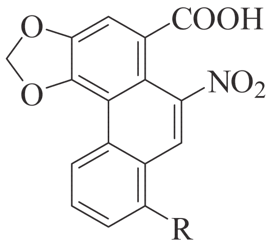


aristolochic acid

Fig. 1. Chemical structures of compounds

025-3. 細辛 Aristolochic Acid in Asarum (Xixin)

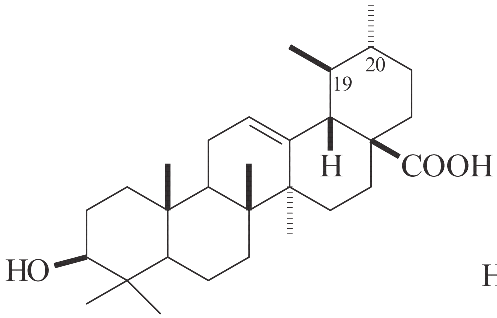
* Ya-Hui Hsu, Chi-Fang Lo, Fang-Su Liu and Jer-Huei Lin:
Journal of Food and Drug Analysis **17**(4) 274-281 (2009)



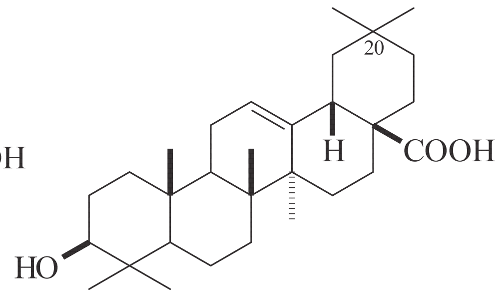
Aristolochic acid I: R=OCH_3
Aristolochic acid II: R=H

026. 接骨木 Sambuci Lignum

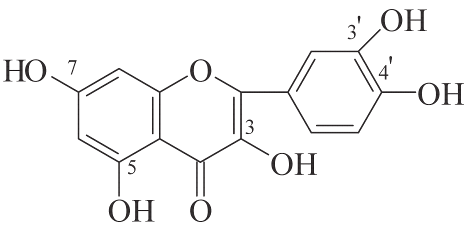
* *Sambucus williamsii* Hancf. [Caprifoliaceae]



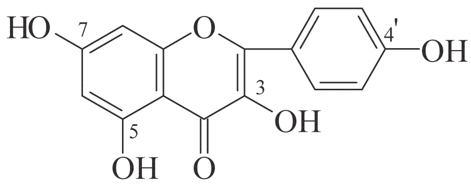
ursolic acid



oleanolic acid



quercetin

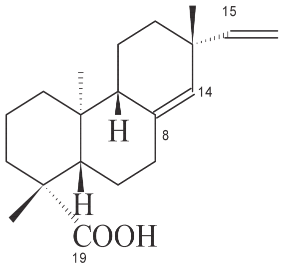


kaempferol

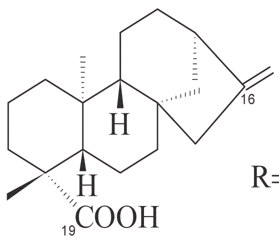
Fig. 1. Chemical structures of compounds

027-1. 九眼獨活 Araliae Cordatae Rhizoma

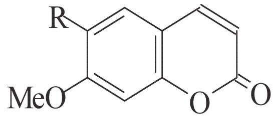
* *Aralia cordata* Thunberg. [Araliaceae]



ent-pimara-8 (14)-15-dien-19-oic acid
(PA)

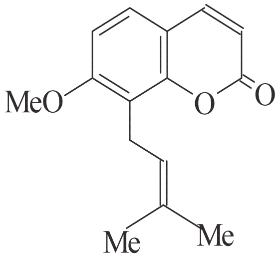


ent-kaur-16-ene-19-oic-acid
(PK)

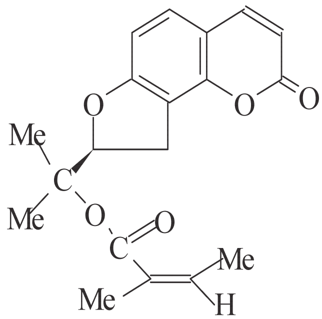


angelol A

$R= HOC(CH_3)_2-CH-CH(OH)$
$\qquad\qquad\qquad\quad | $
$\qquad\qquad\qquad O_2C-C(CH_3)=CH-CH_3$



osthol



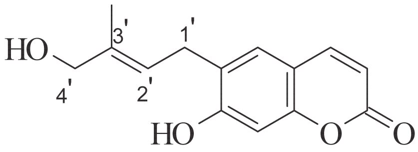
columbianadin

* *Angelica pubescens* Maxim. [Umbelliferae]

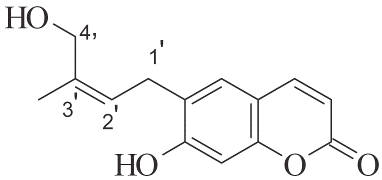
027-2-1. 白亮獨活 Du-huo Radix

* *Heracleum candicans* Wall. [Umbelliferae]

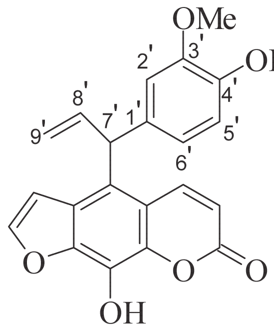
** Terue Nakamori, Masahiko Taniguchi, Makio Shibano,
Nian-He Wang, Kimiye Baba:
J Nat Med, **62**(4), 403-412 (2008)



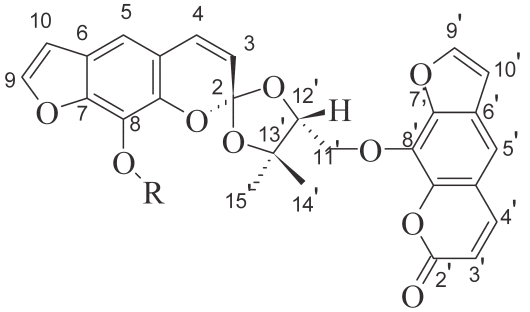
Isophellodenol C (**1**)



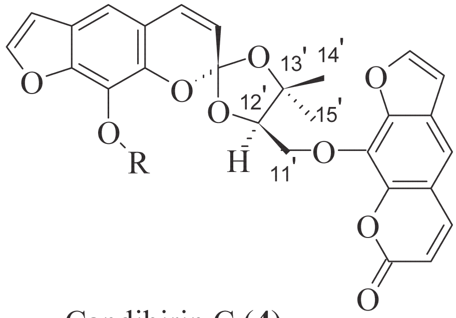
Phellodenol C



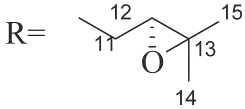
Candinol A (**2**)



Candibirin B (**3**)

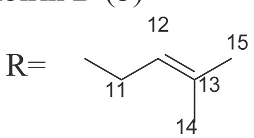


Candibirin C (**4**)



Candibirin D (**5**)

Candibirin E (**6**)



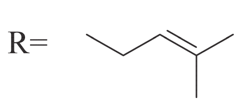


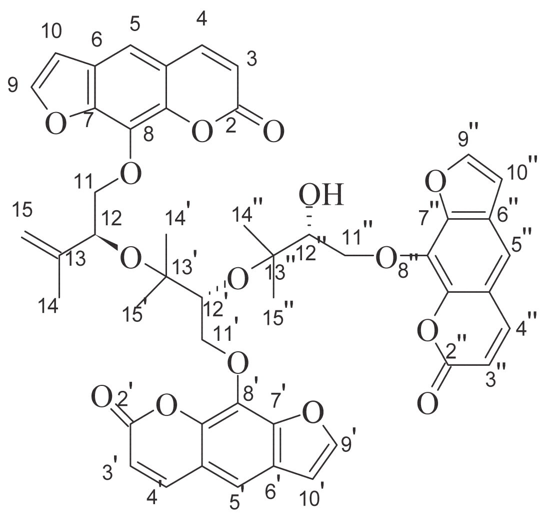
Fig. 1-1. Structures of **1**--**6** and Phellodenol C
*(Continued Fig. 1-2)

027-2-2. 白亮獨活 Du-huo Radix

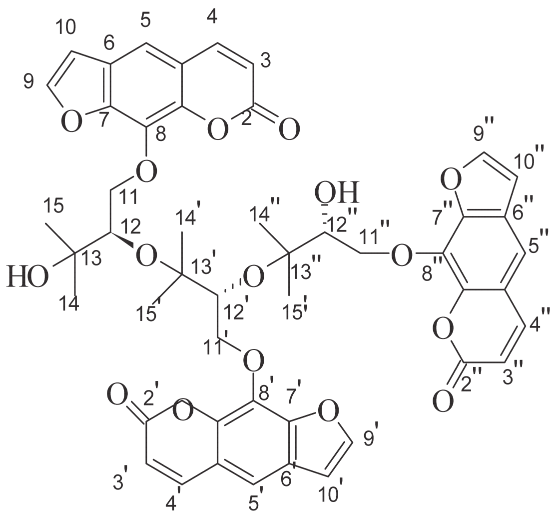
* *Heracleum candicans* Wall. [Umbelliferae]

** Baba K. et al: *J Nat Med,* **62**(4), 403-412 (2008)

*** (Continued 027-2-1)



Canditririn A (**7**)



Canditririn B (**8**)

Fig. 1-2. Structures of **7--8**

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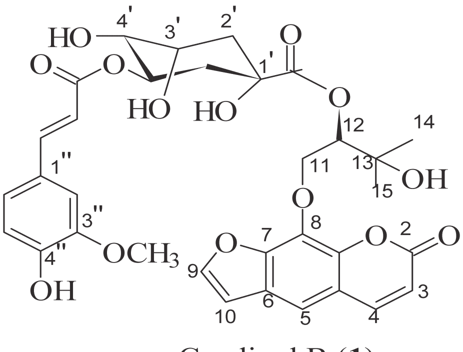
* Two New alkyl coumarins: isophellodenol C (**1**) and candinol A (**2**);
Four New spirobifuranocoumarin: candibirins B--E (**3--6**);
Two trifuranocoumarins: canditririns A and B (**7** and **8**).

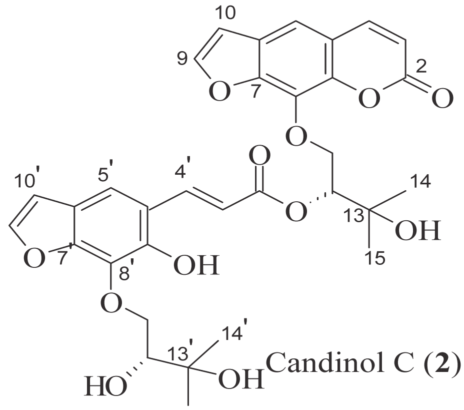
027-2-3. 白亮獨活 Du-huo Radix

* *Heracleum candicans* Wall. [Umbelliferae]

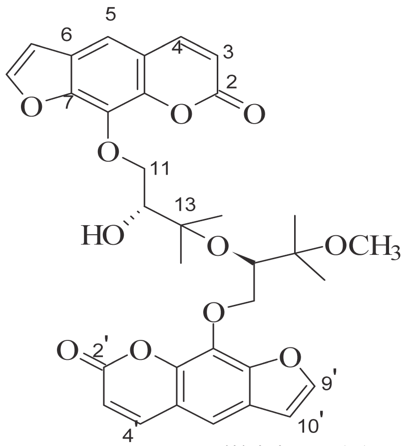
** Atsuko Inoue , Masahiko Taniguchi, Makio Shibano, Nian-He Wang, Kimiye Baba: *J Nat Med* **64**(2) 175-181 (2010)



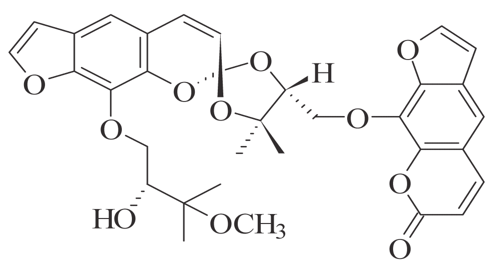
Candinol B (**1**)



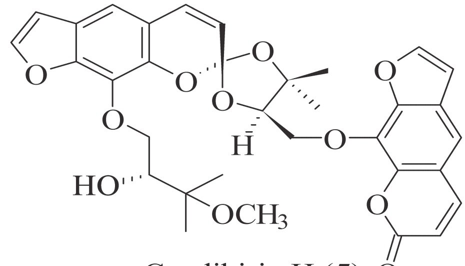
Candinol C (**2**)



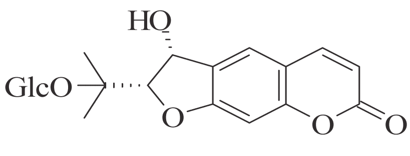
Candibirin F (**3**)



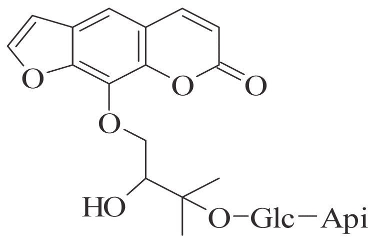
Candibirin G (**4**)



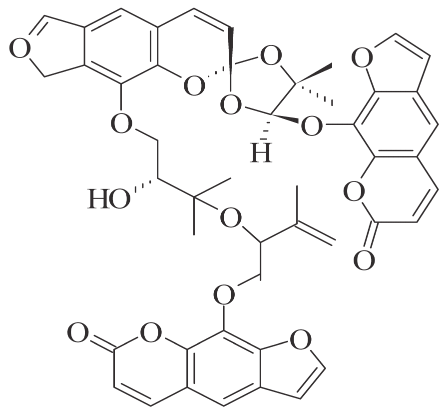
Candibirin H (**5**)



1'-***O***-β–D-Glucopyranosyl-(2*S*,3*R*)-3-hydroxymarmesin (**6**)



13-***O***-[β–D-Apiofuranosyl (1-6)-β–D-glucopyranosyl]-heraclenol (**7**)



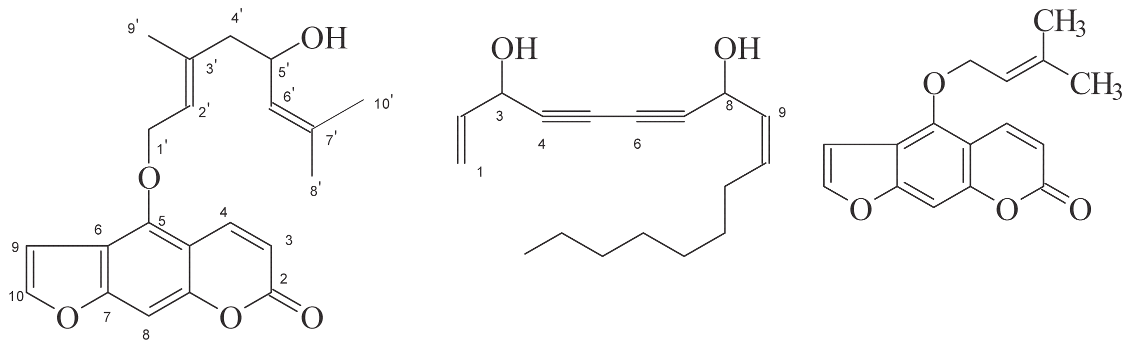
Rivulotririn (**8**)

Fig. 1. Structures of **1**--**8**

028. 羌活 Notopterygii Rhizoma

* *Notopterygium forbesii* Boissieu

N. *incium* Ting ex H.T. Chang [Umbelliferae]

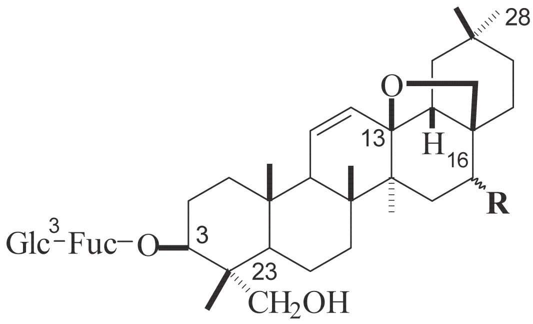


notopteol falcarindiol isoimperatorin

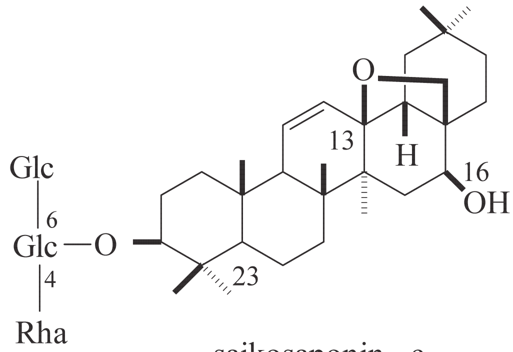
Fig. 1. Chemical structures of compounds

029-1. 柴胡 Bupleuri Radix

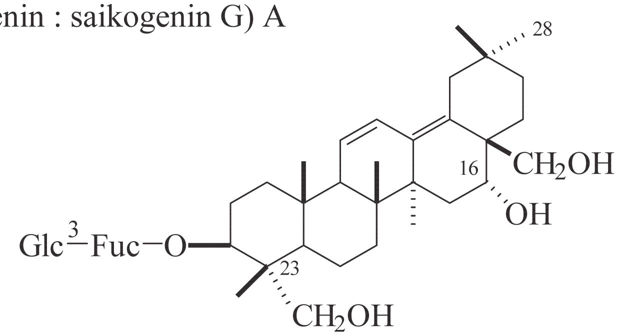
Bupleurum chinense De Candolle (China)
B. falcatum L.(Japan) [Umbelliferae]



saikosaponin-a : R=- β-OH
(genin : saikogenin F) D
saikosaponin-d : R=- α-OH
(genin : saikogenin G) A



saikosaponin −c
(genin : saikogenin E) C



saikosaponin b_2

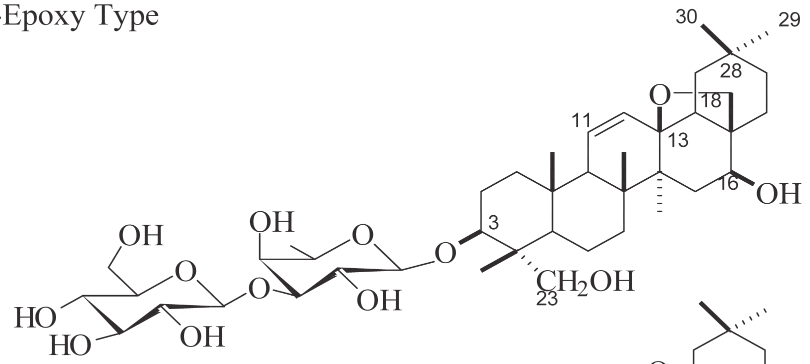
Fig. 1 Structures of saikosaponins
*(*Glc*: glucose, *Fuc*: fucose, *Rha*: rhamnose)

029-2-1. 柴胡 Oleanene Glycosides of the Aerial Parts and Seeds of *Bupleurum falcatum* L. [Umbelliferae] and Their Evaluation as Anti-hepatitis Agents

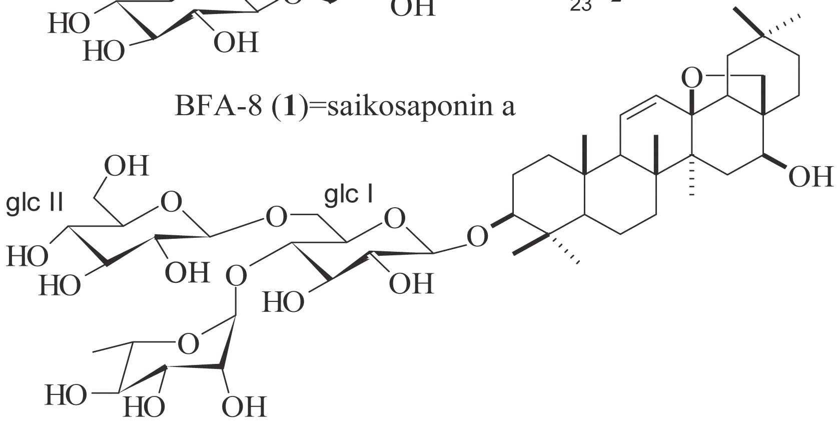
* Yuko Nakahara, Masafumi Okawa, Junei Kinjo, and Toshihiro Nohara:
Chem. Pharm. Bull. **59**(11) 1329-1339 (2011)

Table 1. Oleanene Glycosides Obtained from the Aerial Parts of *Bupleurum falcatum*

13,28-Epoxy Type

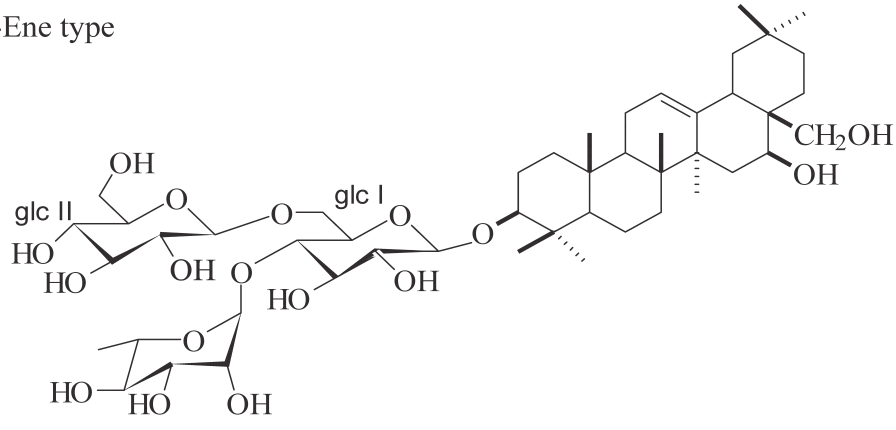


BFA-8 (**1**)=saikosaponin a



BFA-22 (**2**)=saikosaponin C

12-Ene type



BFA-5 (**3**)=saiosaponin f

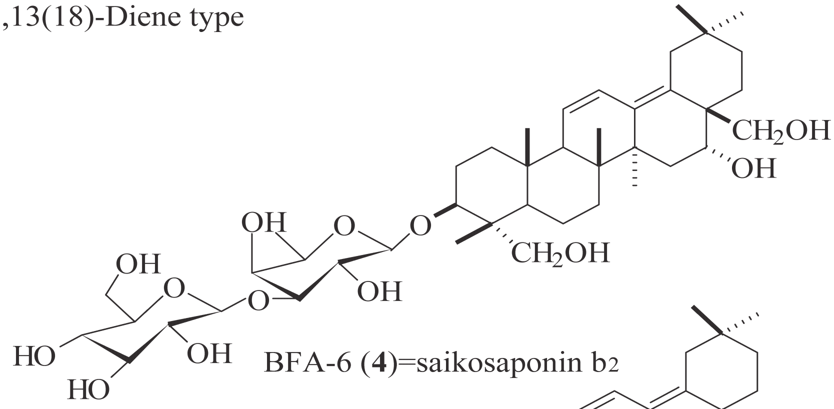
029-2-2. 柴胡 Oleanene Glycosides of the Aerial Parts and Seeds of *Bupleurum falcatum* L. [Umbelliferae]

*Yuko Nakahara , Toshihiro Nohara et al:

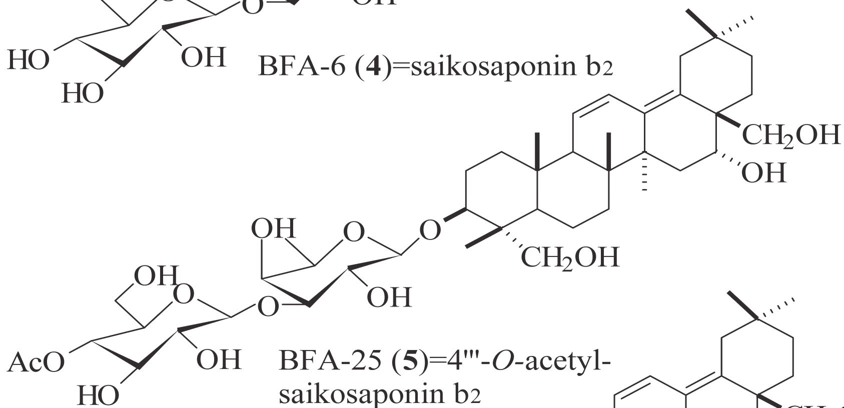
Chem. Pharm. Bull. **59**(11) 1329-1339 (2011)

** Continued 029-2-1

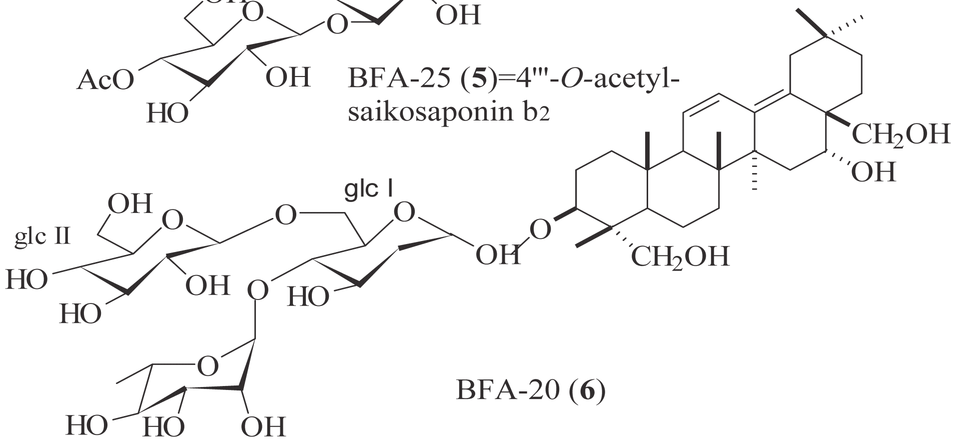
11,13(18)-Diene type



BFA-6 (**4**)=saikosaponin b2

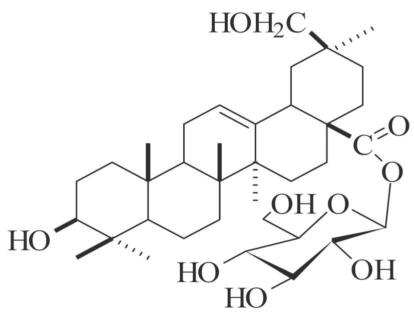


BFA-25 (**5**)=4'''-*O*-acetyl-saikosaponin b2



BFA-20 (**6**)

28-Acid type



BFA-17 (**7**)

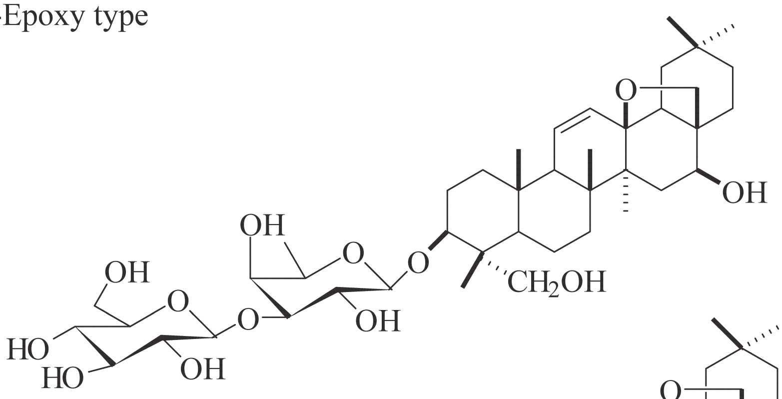
029-2-3. 柴胡 Oleanene Glycosides of the Aerial Parts and Seeds of *Bupleurum falcatum* L. [Umbelliferae]

* Yuko Nakahara, Toshihiro Nohara et al:
Chem. Pharm. Bull. **59**(11) 1329-1339 (2011)

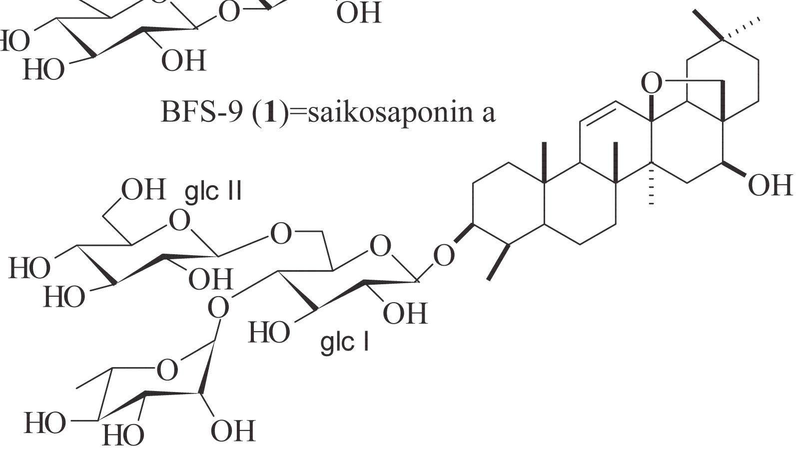
** Continued 029-2-2.

Table 2. Oleanene Glycosides Obtained from the Seeds of *Bupleurum falcatum*

13,28-Epoxy type

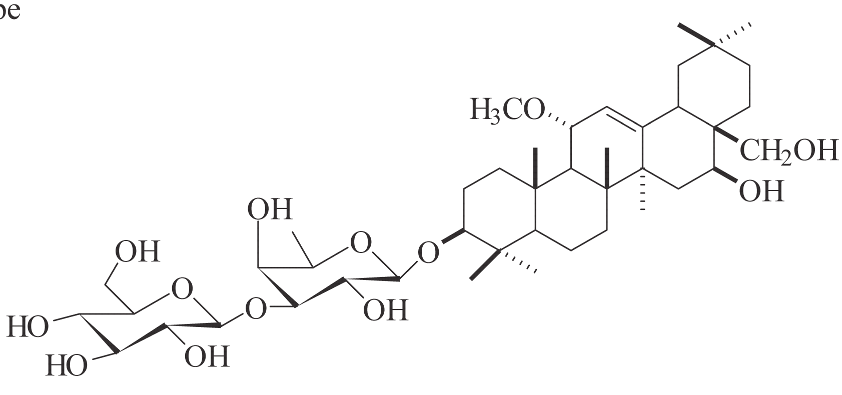


BFS-9 (**1**)=saikosaponin a



BFS-1 (**2**)=saikosaponin c

12-Ene type



BFS-16 (**8**)=bupleuroside IX

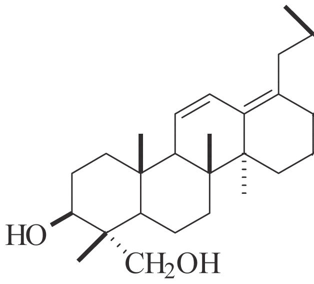
029-2-4. 柴胡 Oleanene Glycosides of the Aerial Parts and Seeds of *Bupleurum falcatum* L. [Umbelliferae]

*Yuko Nakahara, Toshihiro Nohara et al:

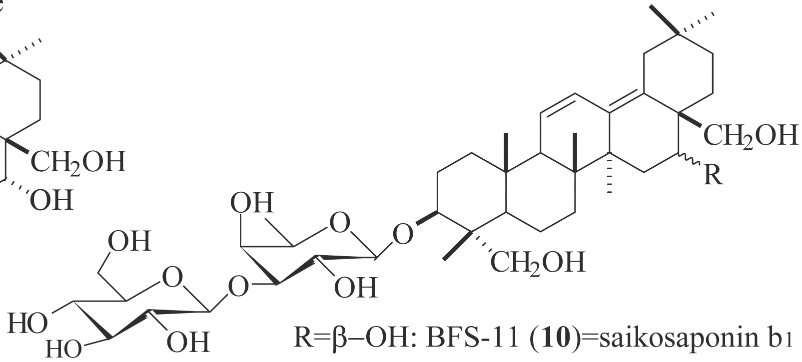
Chem. Pharm. Bull. **59**(11) 1329-1339 (2011)

** Continued 029-2-3

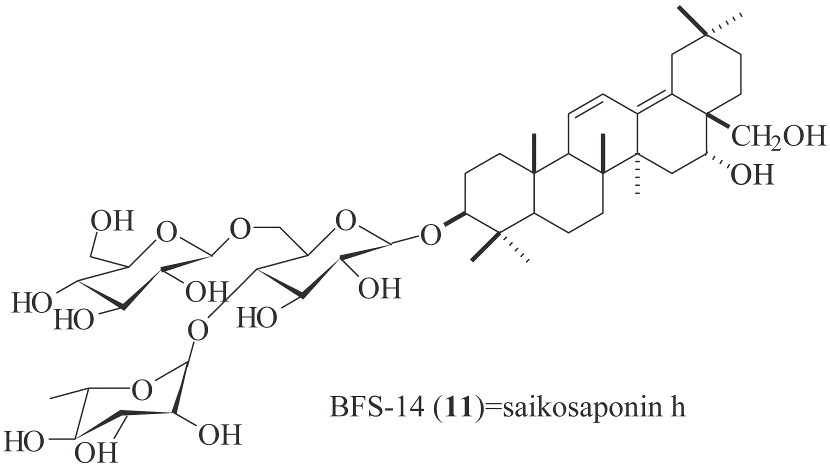
9(11),12-Diene type



BFS-8 (**9**)=saikogenin D

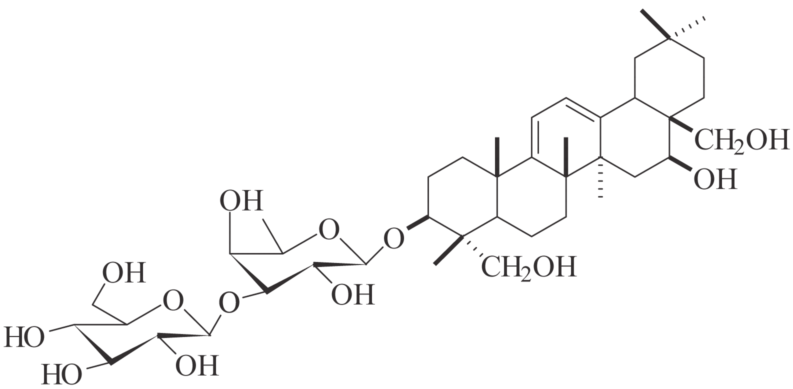


R=β–OH: BFS-11 (**10**)=saikosaponin b1
R=α–OH: BFS-13 (**4**)=saikosaponin b2



BFS-14 (**11**)=saikosaponin h

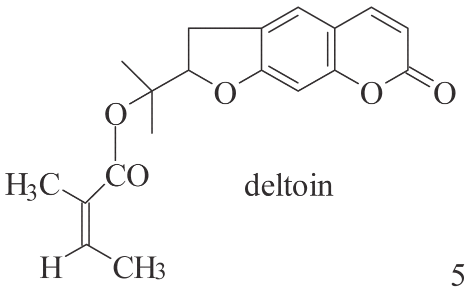
28-Acid type



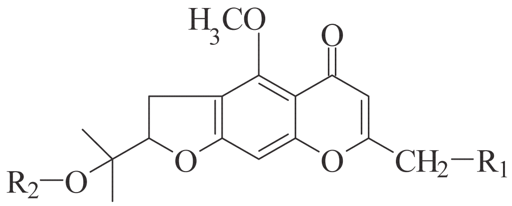
BFS-10 (**12**)=saikosaponin g

030-1-1. 防風 Saposhnikoviae Divaricatae Radix

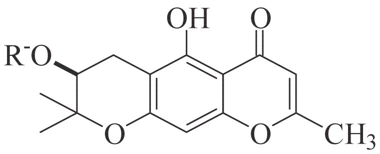
* *Saposhnikovia divaricata* Schis [Umbelliferae]



deltoin



	R_1	R_2
5-O-methylvisammonol	H	H
5-O-methylvisamminol glucoside	H	Glc
cimifugin	OH	H
cimifugin glucoside	O-Glc	H



hamaudol R=H
hamaudol glucoside R=Glc

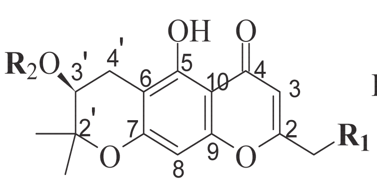
Fig. 1. Chemical structures of compounds

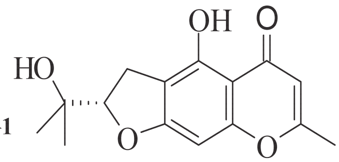
030-1-2. 防風 Saposhnikoviae Divaricatae Radix

* *Saposhnikovia divaricata* Schischkin

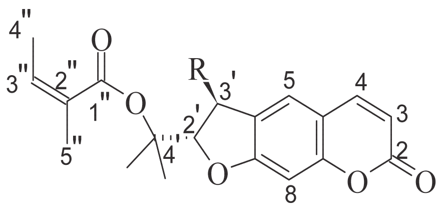
(= *Ledebouriella seseloides* Wolff) [Umbelliferae]

** M.Yamazaki et al. : *Chem. Pharm. Bull.* **49**(2), 154-160 (2001)



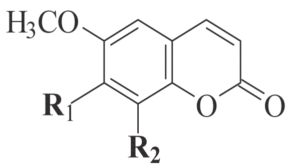


cimifugin

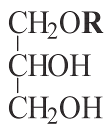


sec-O-glucosylhamaudol : R_1=H, R_2=β–Glc
ledebouriellol : R_1=OH, R_2=angeloyl
hamaudol : R_1=R_2=H
divaricatol : R_1=OH, R_2=acetyl

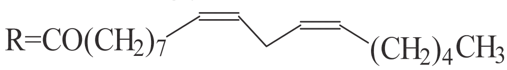
(3'*S*)-hydroxydeltoin : R=OH
deltoin : R=H



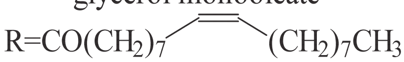
isofraxidin : R_1=OH, R_2=OCH_3
scopoletin : R_1=R_2=OH
fraxidin : R_1=OCH_3, R_2=OH

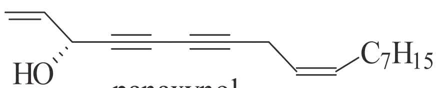


glycerol monolinoleate

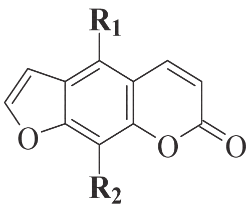


glycerol monooleate





panaxynol



psoralen : R_1=R_2=H
xanthotoxin : R_1=H, R_2=OCH_3
bergapten : R_1=OCH_3, R_2=H
imperatorin : R_1=H, R_2=$OCH_2CHC(CH_3)_2$
isoimperatorin : R_1=$OCH_2CHC(CH_3)_2$, R_2=H

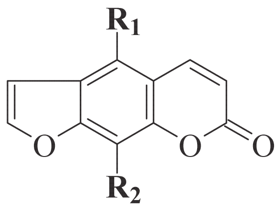
Fig. 1. Chemical structures of compounds

030–2–1. 濱防風 Glehniae Radix et Rhizoma

* *Glehnia littoralis* Schmidt ex Miquel. [Umbelliferae]

* * A. Itoh, K. Sasaki, H. Mizukami, H. Ohashi, T. Sakurai, N. Hiraoka : *Natural Medicines* **51**(1), 50-55 (1997)

1). *Furano-coumarins:*



	R_1	R_2
(**1**). psoralen	H	H
(**2**). xanthotoxin	H	OCH_3
(**3**). bergapten	OCH_3	H
(**4**). imperatorin	H	DMA
(**5**). phellopterin	OCH_3	DMA
(**6**). isoimperatorin	DMA	H
(**7**). 8-GER-psoralen	H	GER
(**8**). bergamottin	GER	H

* DMA : 3,3-dimethylallyoxy
GER : geranyloxy

2). *Polyacetilenic Compound:*

$$H_2C{=}CH{-}\underset{\displaystyle OH}{\underset{|}{C}}H{-}(C{\equiv}C)_2{-}CH_2{-}CH{=}CH{-}(CH_2)_6{-}CH_3$$

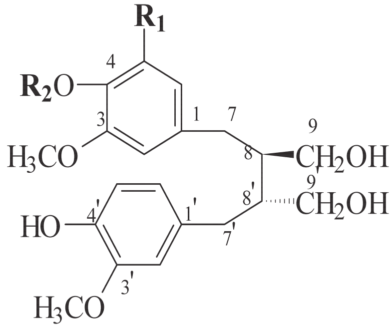
(**9**). panaxynol

Fig. 1. Chemical Structures of Furano-coumarins and Panaxynol from *Glehnia littoralis*

030-2-2-1. 濱防風 Glehniae Radix et Rhizoma

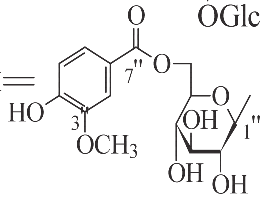
* *Glehnia littoralis* Fr. Schmidt. ex Miquel. [Umbelliferae]

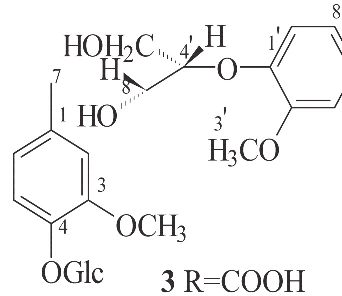
** Zhong Yuan, Yasuhiro Tezuka, Wenzhe Fan, Shigetoshi Kadota, and Xian Li: *Chem. Pharm. Bull.* **50**(1), 73-77 ((2002)



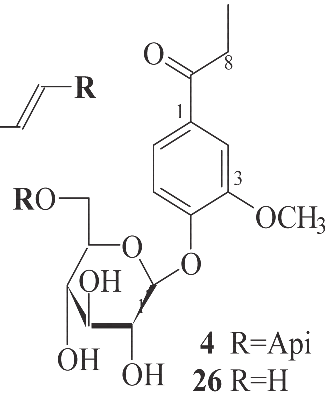
1 R_1=H, R_2=X
2 R_1=OCH_3, R_2=X
5 R_1=H, R_2=Glc
7 R_1=H, R_2=H

* X=

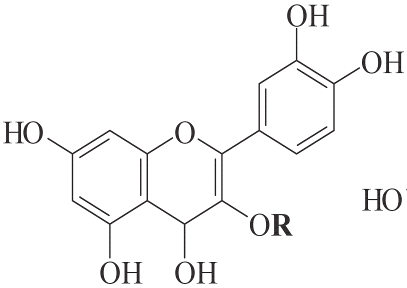




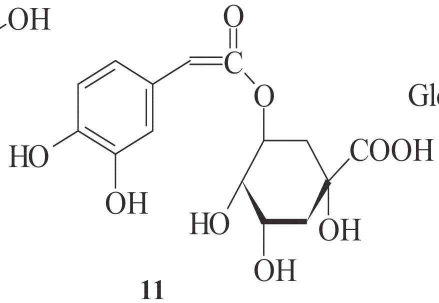
3 R=COOH
6 R=CH2OH



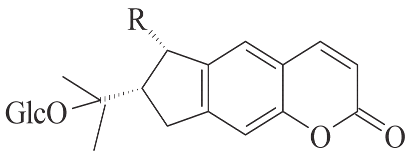
4 R=Api
26 R=H



8 R=H
9 R=Glc
10 R=Glc-6--Rha



11



14 R=H
15 R=OH

---

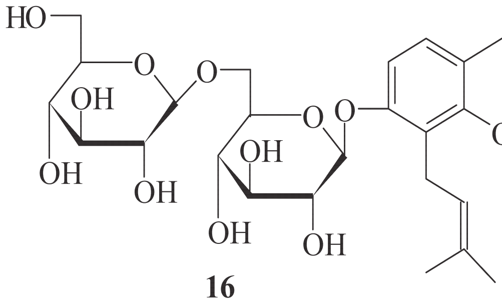
* **1**: **glehinosaide A, 2**: **glehinoside B, 3**: **glehinoside C**
4: {4-[β-D-apiofuranosyl-(1-6)-β–D-glucopyranosyloxy]-3-methoxypropio-phenone},
5: (-)-*seco*-isolariciresinol 4--***O***-β–D-glucopyranoside,
6: citrucin A, **7**: (-)-*seco*-isolariciresinol, **8**: quercetin, **9**: isoquercetin,
10: rutin , **11**: chlorogenic acid, **14**: marmesinin,
15: (3'R)-hydroxymarmesin *4'-**O**-* β–D-glucopyranoside,
26: 3-methoxy-4-β–D-glucopyranosyloxy-propiophenone.

030-2-2-2. 濱防風 Glehniae Radix et Rhisoma

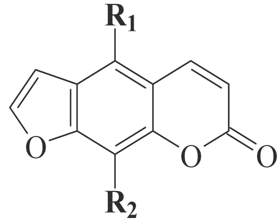
* *Glehnia littoralis* Fr. Schmidt et Miquel [Umbelliferae]

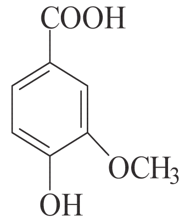
** Zhong Yuan et al, *Chem. Pharm. Bull.* **50**(1), 73-77 (2002)

*** Lignan glycoside, neolignan glycoside, phenylpropanoid glycoside; 1,1-dephenyl-2-picrylhydrazyl radical--scavenging activity



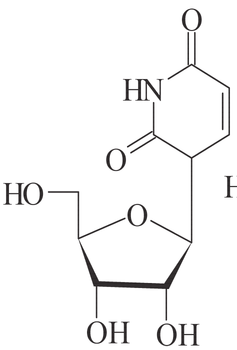
16

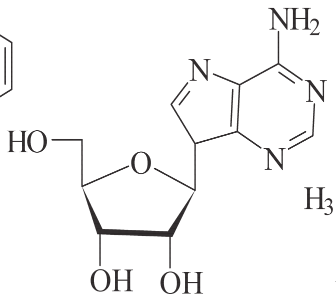


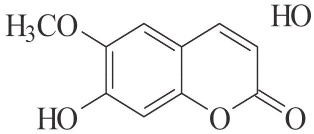


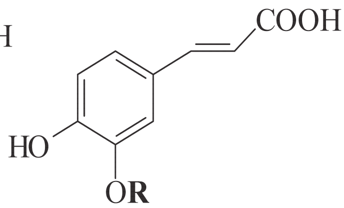
25

12 :R_1=H, R_2=OCH_2CH=$C(CH_3)CH_2OGlc$
13 :R_1=OGlc, R_2=H
19 :R_1=$OCH_2CH\overset{E}{\underset{E}{=}}C(CH_3)_2$, R_2=H
20 :R_1=H, R_2=H
22 :R_1=H, R_2=OH









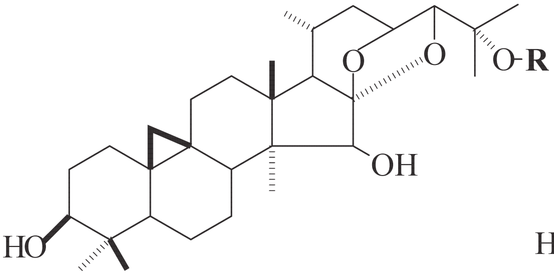
17 **18** **21**

23 :R=CH_3
24 :R=H

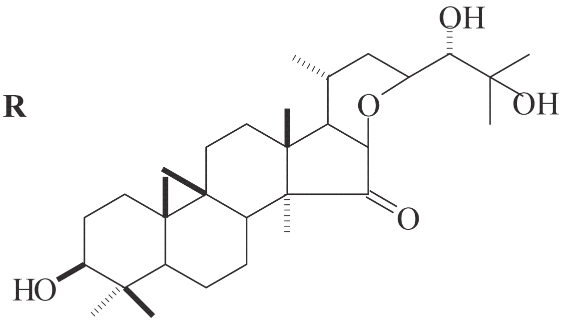
* **12** : 4''-hydroxy-imperatorin 4''-***O***-β–D-glucopyranoside,
13 : bergaptol-7-***O***-β–D-glucopyranoside,
16 : osthenol-7-***O***-β–D-gentiobioside,
17 : uridine, **18** : adenosine, **19** : isoimperatorin,
20 : psoralen, **21** : scopoletin, **22** : xanthoxol,
23 : ferulic acid, **24** : caffeic acid, **25** : vanillic acid.

031-1. 升麻 Cimicifugae Rhizoma

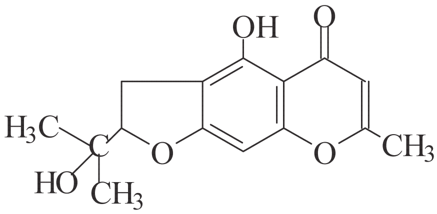
* *Cimicifuga simplex* Wormsk.
C. *dahurica* Maxim.
C. *heracleifolia* Komarov. [Ranunculaceae]



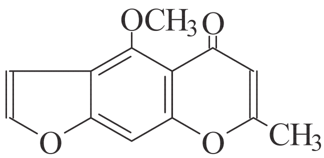
cimigenol: R=H (15*R*, 24*S*)



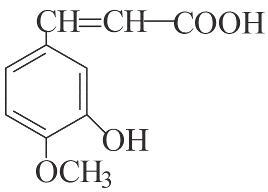
dahurinol : 24*R*
isodahurinol : 24*S*



visamminol



visnagin



isoferulic acid

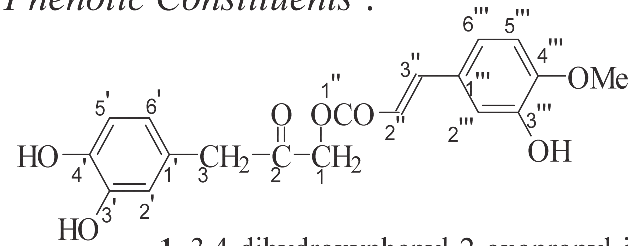
Fig. 1. Chemical structures of compounds

031–2–1. 升麻 Cimicifugae Rhizoma

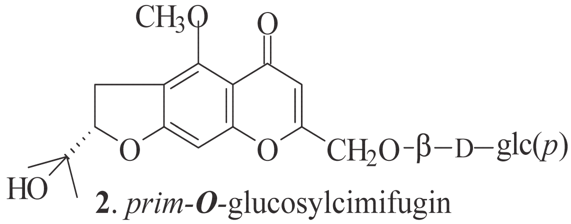
* *Cimicifuga simplex* Worms. [Ranunculaceae]

** M. Takahira, M. Yanagi, A. Kusano, M. Shibano, K. Baba, G. Kusano, N. Sakurai, M. Nagai : *Natural Medicines*, **52**(4), 330-338 (1998)

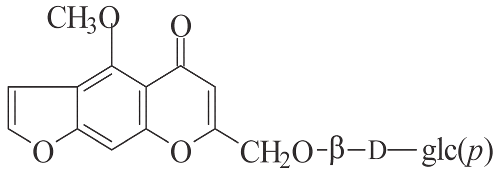
*** *Phenolic Constituents* :



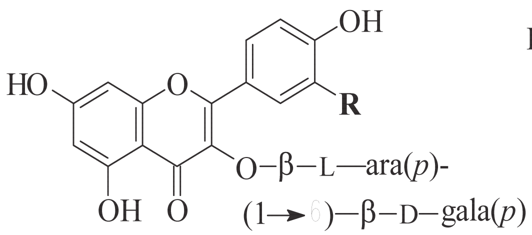
1. 3,4-dihydroxyphenyl-2-oxopropyl-isoferulate



2. *prim*-***O***-glucosylcimifugin

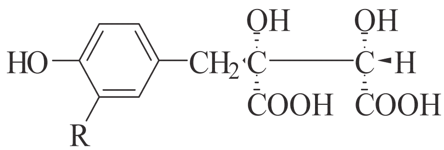


3. *prim*-***O***-glucosylkhellol



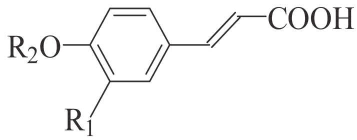
4. kaempferol-3-***O***-arabinopyranosyl-(1→6)-galactopyranoside : R=H

5. quercetin-3-***O***-arabinopyranosyl-(1→6)-galactopyranoside : R=OH



· fukiic acid : R=OH

· piscidic acid : R=H



15. caffeic acid : R_1=OH, R_2=H

16. ferulic acid : R_1=OMe, R_2=OH

17. isoferulic acid : R_1=H, R_2=Me

18. 3,4-dimethoxy-cinnamic acid : R_1=OMe, R_2=Me

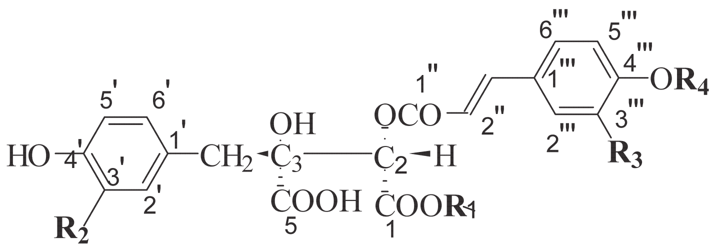
19. *p*-coumaric acid : R_1=R_2=H

Fig. 1. Chemical structures of compounds

031-2-2. 升麻 Cimicifugae Rhizoma

* *Cimicifuga simplex* Worms. [Ranunculaceae]

** K. Baba et al : *Natural Medicines,* **52**(4), 330-338 (1998)



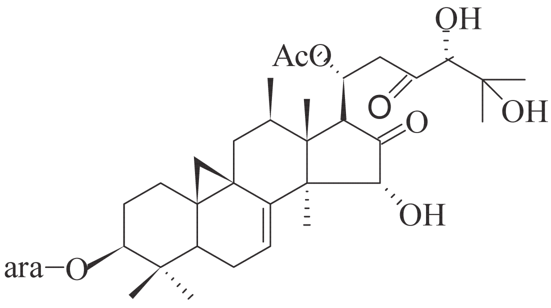
	R_1	R_2	R_3	R_4	
6:	H	OH	OMe	H	Cimicifugic acid A
7:	H	OH	OH	Me	Cimicifugic acid B
8:	H	OH	H	H	Cimicifugic acid C
12:	H	OH	OH	H	Fukinolic acid
9:	H	H	OH	H	2-caffeoyl piscidic acid
10:	H	H	OMe	H	2-feruloyl piscidic acid
11:	H	H	OH	Me	2-isoferuloyl piscidic acid
20:	Me	OH	OMe	H	2-feruloylfukiic acid-1-methyl ester
21:	Me	OH	OH	Me	2-isoferuloyl fukiic acid-1-methyl ester
22:	Me	H	OMe	H	2-feruloyol piscidic acid-1-methyl ester
23:	Me	H	OH	Me	2-isoferuloyl piscidic acid-1-methyl ester

Fig. 1. Chemical structures of compounds

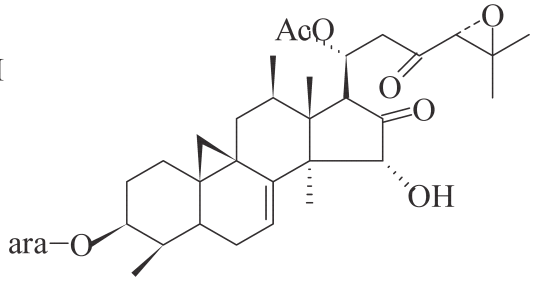
031-2-3. 升麻 Cimicifugae Rhizoma

* *Cimicifuga simplex* Worms. [Ranunculaceae]

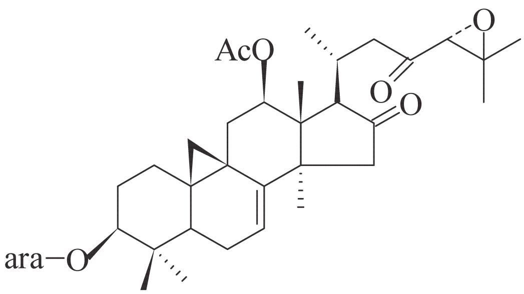
** A. Kusano, M. Shibano, D. Tsukamoto, G. Kusano: *Chem Pharm Bull,* **49**(4), 437-441 (2001)



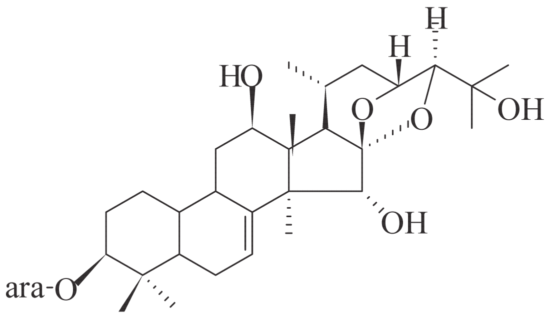
bugbanoside C (**1**)



bugbanoside D (**2**)



bugbanoside E (**3**)

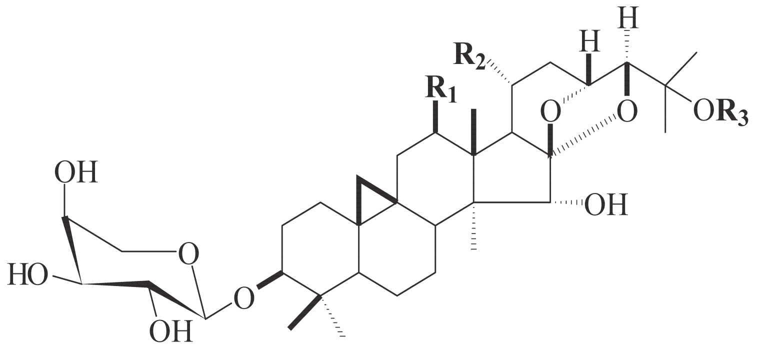


bugbanoside F (**4**)

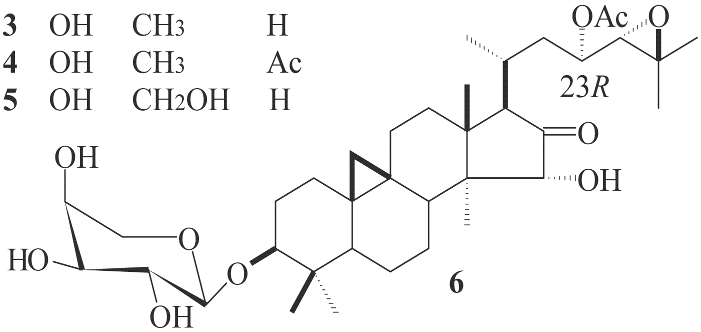
Fig. 1. Chemical structures of compounds

031-3-1. 升麻 Cycloartane Glycosides from the Rhizomes of *Cimicifuga racemosa*

* Kazuki Watanabe, Yoshihiro Mimaki, Hiroshi Sakagami, and Yutaka Sashida,
Chem. Pharm Bull. **50**(1), 121-125 (2002)



	R_1	R_2	R_3
1	H	CH_3	H
2	H	CH_3	CH_3
3	OH	CH_3	H
4	OH	CH_3	Ac
5	OH	CH_2OH	H



6

Fig. 1. Chemical structures of compounds **1--6**

* **1** : cimigenol 3-***O***-α−L-arabinopyranoside
2 : 25-***O***-methoxycimigenol 3-***O***-α−L-arabinopyranoside
3 : 12β−hydroxycimigenol 3-***O***-α−L-arabinopyranoside
4 : 25-***O***-acetyl-12β−hydroxycimigenol 3-***O***-L-arabinopyranoside
5 : 12β,21−dihydroxycimigenol 3-***O***-α−arabinopyranoside
6 : 23-***O***-acetylshengmanol 3-***O***-α−L-arabinopyranoside
** Black Cohosh (*Cimicifuga racemosa* (L.) Nutt.

031-3-2. 升麻 Cimicifugae Rhizoma

* *Cimicifuga racemosa* [Ranunculaceae]

** Kazuki Watanabe et al: *Chem. Pharm. Bull.* **50**(1), 121-125 (2002)

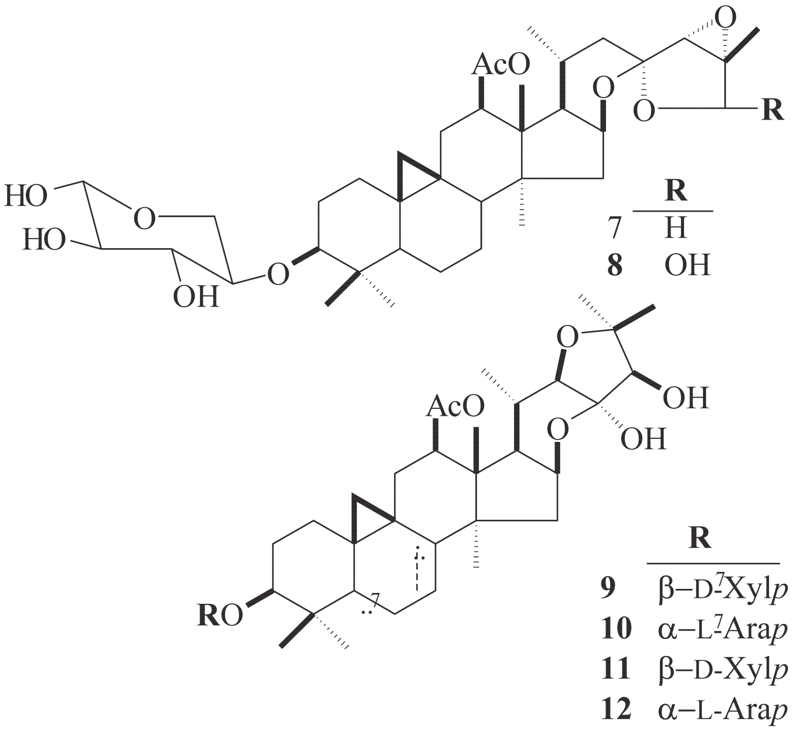


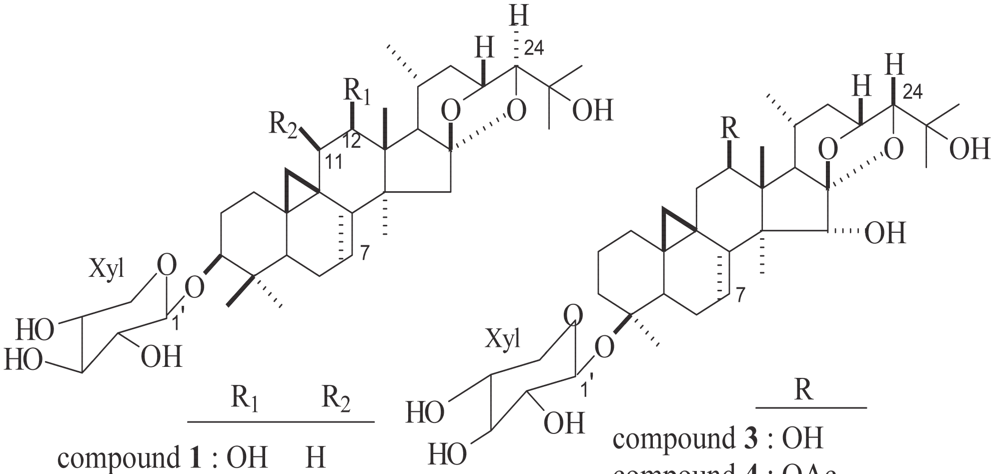
Fig. 1. Chemical structures of compounds **7--12**

* **7** : 27-deoxyactein
8 : actein
9 : cimiracemoside F
10 : cimiracemoside G
11 : cimiracemoside H
12 : (22*R*,23*R*,24*R*)-12β–acetyloxy-16β,23:22,25–diepoxy-23,24-dihydroxy-9,19-cyclolanostan-3β–yl- α–L-arabinopyranoside

031-4-1. 升麻 Cimicifugae Rhizoma

* Two New 15-Deoxycimigenol-Type and Three New 24-*epi*-Cimigenol-Type Glycosides from Cimicifuga Rhizome:

** Hitoshi Yoshimitsu, Makiko Nishida, Masahide Sakaguchi, and Toshihiro Nohara: *Chem. Pharm. Bull.* **54**(9), 1322-1325 (2006)



	R_1	R_2
compound **1** :	OH	H
compound **2** :	H	OH

(* 15-deoxycimigenol-type)

	R
compound **3** :	OH
compound **4** :	OAc
compound **5** :	H

(*24-*epi*-cimigenol-type glycosides)

Fig. 1. Chemical structures of compounds **1**--**5**

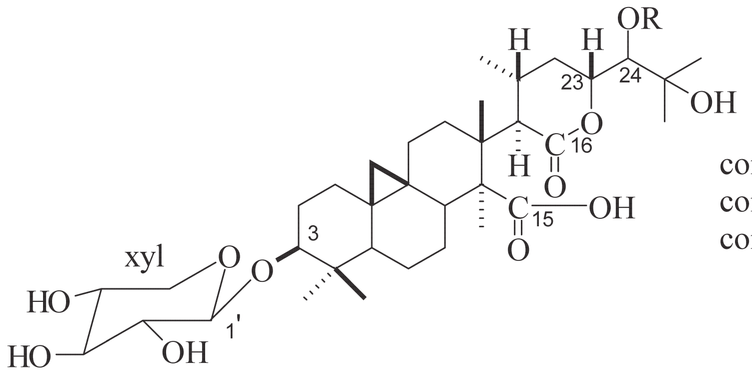
* **1**. (23*R*,24*S*)-16β,23;16α,24−diepoxy-cycloartane-3-β,12β,25−triol 3-***O***-β−D-xylopyranoside
2. (23*R*,24*S*)-16β,23;16α,24−diepoxy-cycloart-7-en-3β,11β,25−triol 3-***O***-β−D-xylopyranoside
3. (23*R*,24*R*)-16β,23;16α,24--diepoxy-cycloart-7-en-3β,12β,15α,25-tetraol 3-***O***-β−D-xylopyranoside
4. (23*R*,24*R*)-16β,23;16α,24−diepoxy-12β−acetoxy-cycloart-7-en-3β,15α,25−triol 3-***O***-β−D-xylopyra
5. (23*R*,24*R*)-16β,23;16α,24−diepoxy-cycloartane-3β,15α,25−triol 3-***O***-β−D-xylopyranoside

031-4-2. 升麻 Cimicifugae Rhizoma

* Three New 15,16-Seco-cycloartane Glycosides from Cimicifuga Rhizome

** Hitoshi Yoshimitsu, Makiko Nishida, and Toshihiro Nohara:

Chem. Pharm. Bull. **55**(5), 789-792 (2007)

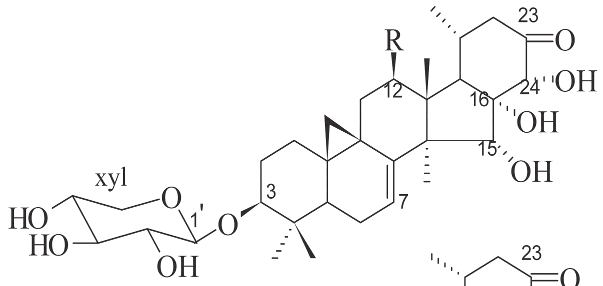


	R	*C*-24
compound **1**:	Ac	*R*
compound **2**:	H	*R*
compound **3**:	H	*S*

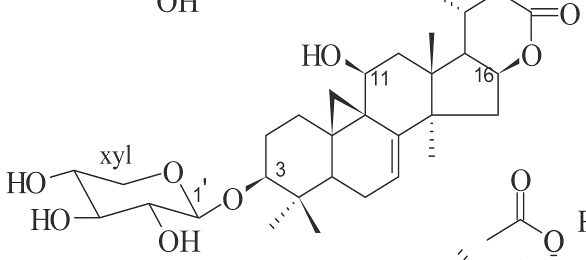
031-4-3. 升麻 Six New Cycloartane Glycosides from Cimicifuga Rhizome

* 1) *Cimicifuga heracleifolia* Komarov. [Ranunculaceae]

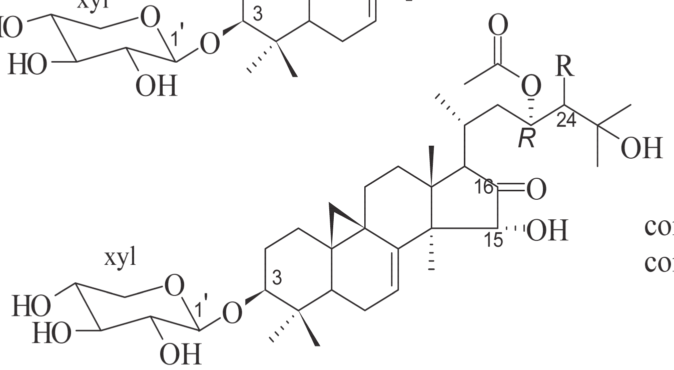
** 2) Makiko Nishida and Hitoshi Yoshimitsu:
Chem. Pharm. Bull. **59**(10) 1243-1249 (2011)



compound **1**: R=H, 7,8-2H
compound **2**: R=H, δ7
compound **3**: R=OAc, δ7



compound **4**



compound **5**: R=OAc, 24-C*S*
compound **6**: R=OH, 24-C*R*

Fig. 1. Chemical structures of compounds **1--6**

* Three new 15-hydroxy-trinor type (**1--3**), a new tetranor type (**4**), and two new 3,15,23,24-tetrahydroxy-16-oxo type cycloartane glycosides (**5,6**) were isolated from the rhizome of *Cimicifuga heracleifolia* Komarov. [Ranunculaceae].

** **1**: 3β,15α,16α,24α−tetrahydroxy-25,26,27-trinor-16,24-cyclo-cycloartane-23-one 3- -*O*-β−D-xylopyranoside.

3: 12β−acetoxy-3β,15α,16α,24α−tetrahydroxy-25,26,27-trinor-16,24-cyclo-cycloart-7-en-23-one 3-*O*-β−D-xylopyranoside.

4: 3β,11β,dihydroxy-24,25,26,27-tetranor-cycloart-7-en,23,16 β−olide 3-*O*-β−D-xylo- -pyranoside

031-5-1. 升麻 Five New Triterpene Bisglycosides with Acyclic Side Chains from the Rhizomes of *Cimicifuga foetida* L. [Ranunculaceae]-1

* Lu Lu, Jian-Chao Chen, He-Jiao Song, Yan Li, Yin Nian, and Ming-Hua Qiu:
Chem. Pharm. Bull. **58**(5) 729-733 (2010)

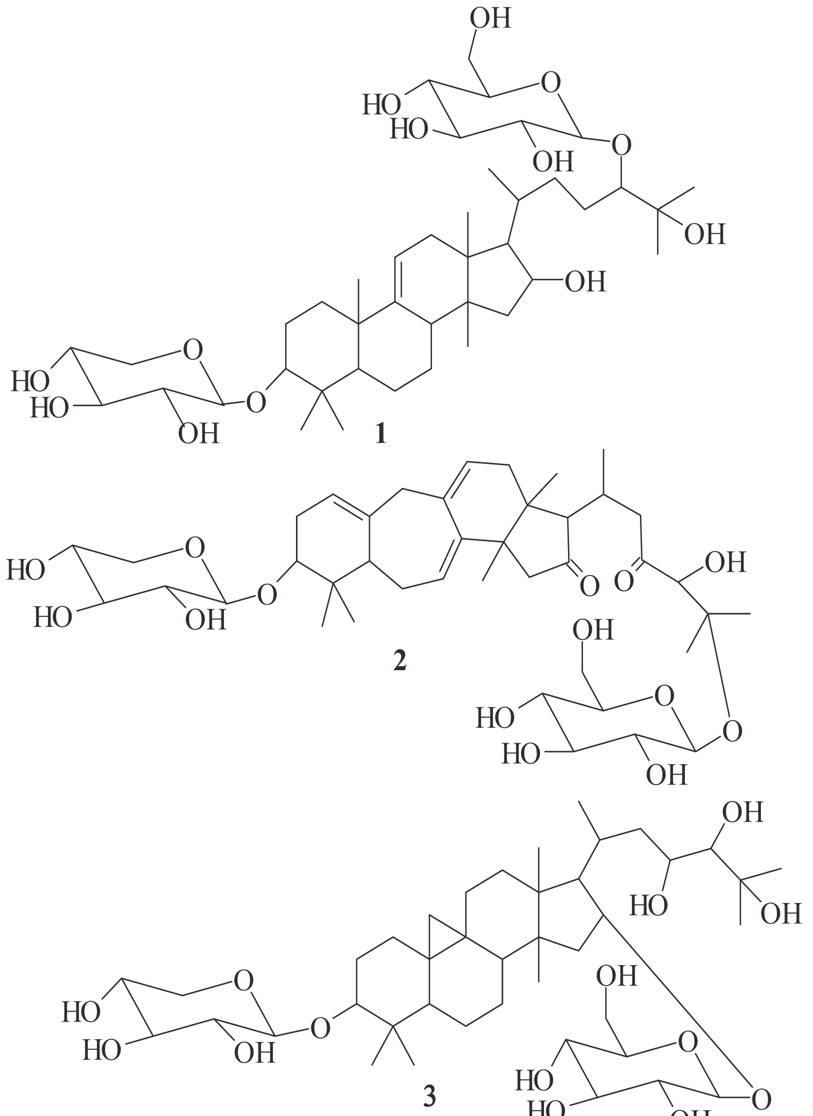


Fig.1-1. Structures of Compounds **1**-**3**

---

* Triterpene Bisglycosides :

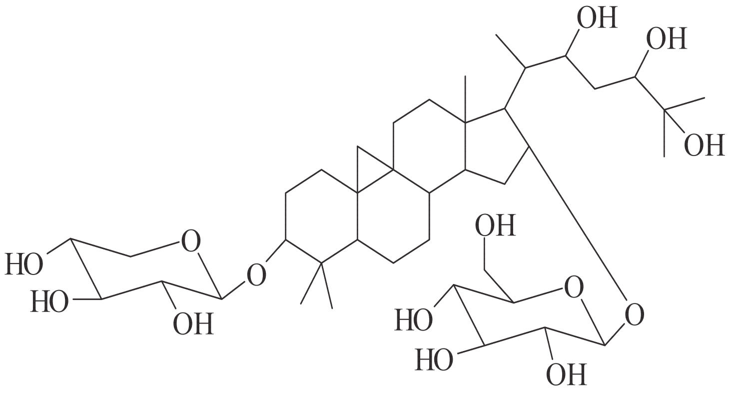
1:lanosta-9(11)-en-3β,16β,24*R*,25-tetraol 3-***O***-β–D-xylopranosyl-24-***O***-β–D-glucopyranoside,

2:9,10-*seco*-cycloarta-1(10),7,9-trien-3β,24ζ,25-triol-16,23-dione 3-***O***-β–D-xylopyranosyl-25-***O***-β–D-glucopyranoside,

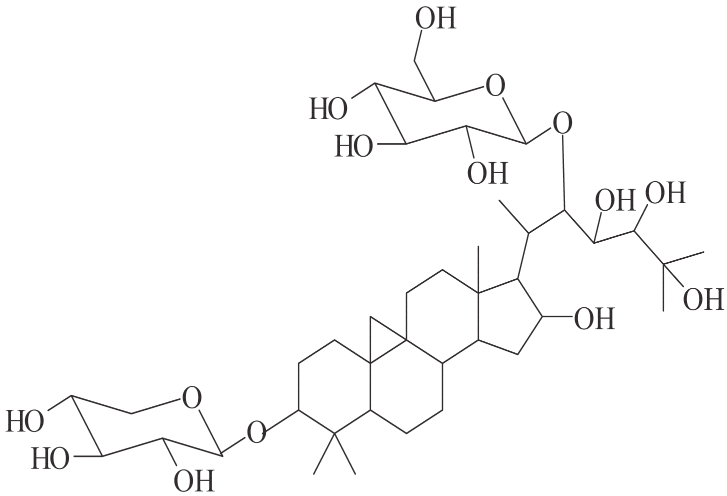
3:cycloarta-3β,16β,23*R*,24*S*,25-pentaol 3-***O***-β–D-xylopyranosyl-16-***O***-β–D-glucopyranoside.

031-5-2. 升麻 Five New Triterpene Bisglycosides with Acyclic Side Chains from the Rhizomes of *Cimicifuga foetida* L. [Ranunculaceae]-2

* Lu Lu, Jian-Chao Chen, He-Jiao Song, Yan Li, Yin Nian, and Ming-Hua Qiu: *Chem. Pharm. Bull.* **58**(5) 729-733 (2010)



4: cycloarta-3β,16β,22ζ,25-pentaol
3-***O***-β–D-xylopyranosyl-16-***O***-β–D-glucopyranoside

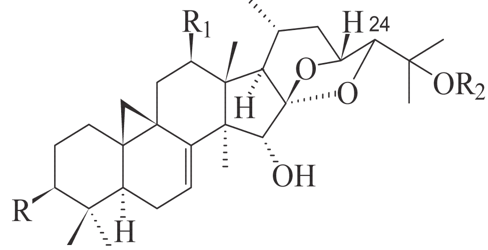


5: cycloarta-3β.16β,22ζ,24ζ,25−hexaol
3-***O***-β–D-xylopyranosyl-22-***O***-β–D-glucopyranoside

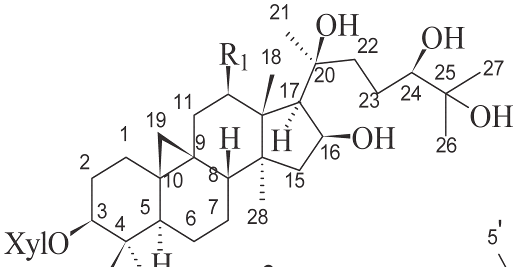
Fig. 1-2. Structures of Compound **4-5**

031-5-3. 升麻 Studies on the Constituents of *Cimicifuga foetida* L.① Collected in Guizhou Province and their Cytotoxic Activities-1

* Lu Lu, Jian-Chao Chen, Yan Li, Chen Qing, Yuan-Yuan Wang, Yin Nian , and Ming-Hua Qiu: *Chem. Pharm. Bull.* **60**(5) 571-577 (2012)



	R	R_1	R_2	
1	=O	H	H	24*R*
5	OH	H	Ac	24*S*
7	=O	H	H	24*S*
8	OH	H	H	24*S*
11	OH	H	H	24*S*
12	OH	OH	H	24*S*
18	Oxyl	OAc	H	24*S*
19	Oxyl	H	H	24*S*
20	OGal	H	H	24*S*
21	Oxyl(1''-3')	H	H	24*S*



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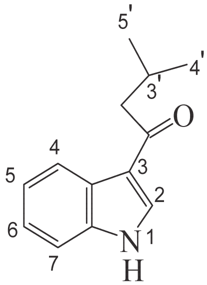

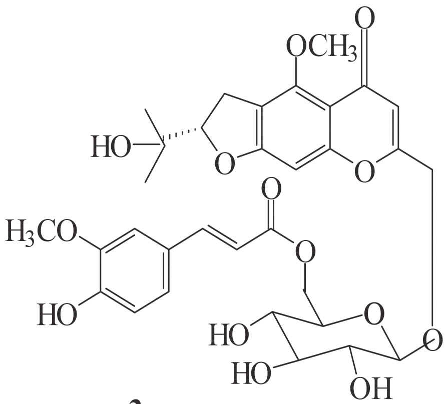

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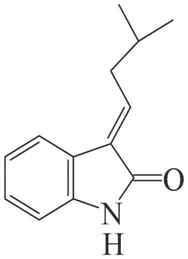

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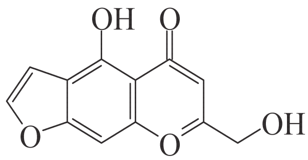

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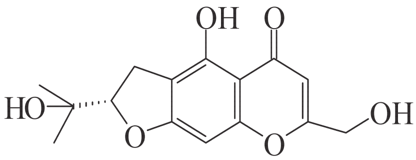
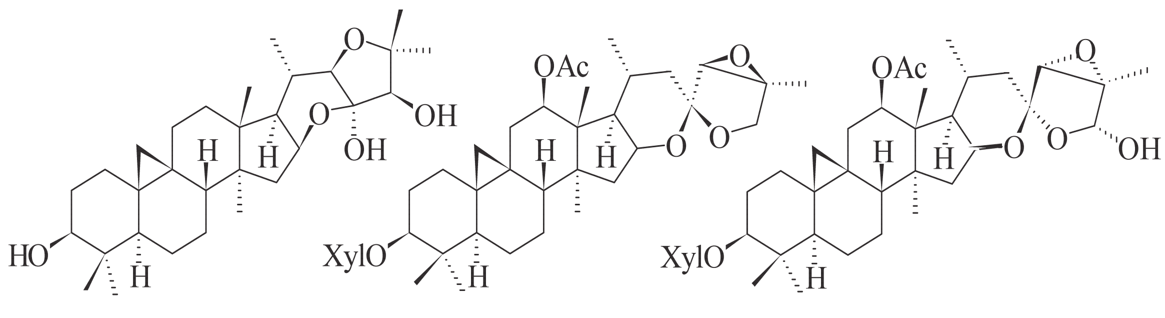


13

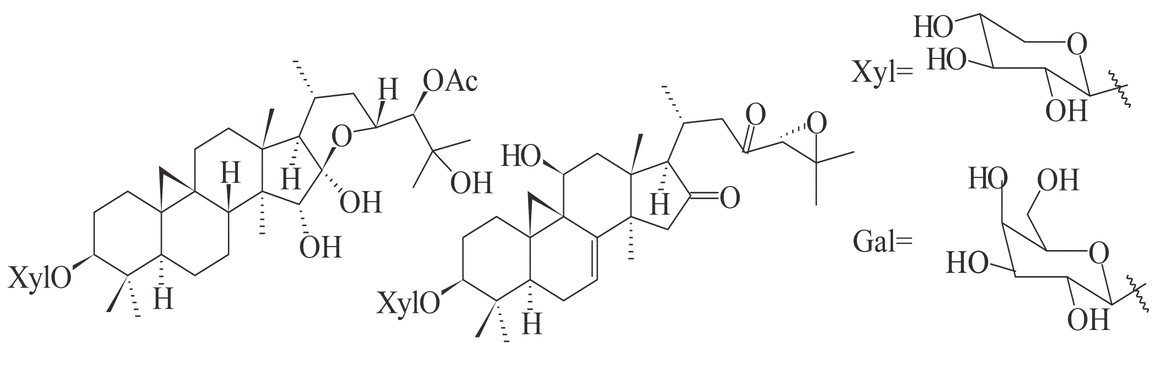
Fig. 1-1. Structures of Compounds

031-5-3. 升麻 Studies on the Constituents of *Cimicifuga foetida* L.② Collected in Guizhou Province and their Cytotoxic Activities-2

* Lu Lu, Jian-Chao Chen, Yan Li, Chen Qing, Yuan-Yuan Wang, Yin Nian, and Ming-Hua Qiu: *Chem. Pharm. Bull.* **60**(5) 571-577 (2012)



9 **14** **15**



16 **17**

Fig. 1-2. Structure of Compounds

* Two new Triterpenoids and a Chromone glycoside, namely, 24-*epi*-cimigenol-3-one (**1**), foetinoside (**2**),cimifugin-4'-*O*-[6''-feruloyl]-β–D-glucopyranoside (**3**), together with 18 known compounds, werevisolated from the rhizomes of *Cimicifuga foetida* L. collected in Guizhou Province, China.
* 18 known compounds: 3-(3-methyl-1-oxo-2-butenyl) 1*H*indole (**4**), 25-*O*-acetylcimigenol (**5**), (*E*)-3-(3'-methylbutylidene)-2-indolinone (**6**), cimigenol-3-one (**7**), cimigenol (**8**), cimiacerin B (**9**), norkhellol (**10**), 7,8-didehydrocimigenol (**11**), 12β-hydroxycimigenol (**12**), norcimifugin (**13**), 23-*epi*-26-deoxyactein (**14**), actein (**15**), 24-*O*-acetylhydroshengmanol-3-*O*-β–D-xyloside (**16**), cimifugoside H-1 (**17**), 12β–*O*-acetylcimigenol-3-*O*-β–D-xyloside (**18**), cimigenol-3-*O*-β–D-xyloside (**19**), cimigenol-3-*O*-β–D-galactoside (**20**), and cimiside B (**21**).

032-1. 白芷 Angelicae Dahuricae Radix

* *Angelica dahurica* Benth. et Hook.var. *dahurica* Benth. et Hook.
A. *dahurica* Benth. et Hook. var. *pai-chi* Kimura, Hata et Yen
A. *dahurica* Benth, et Hook. var. *formosana* Yen [Umbelliferae]

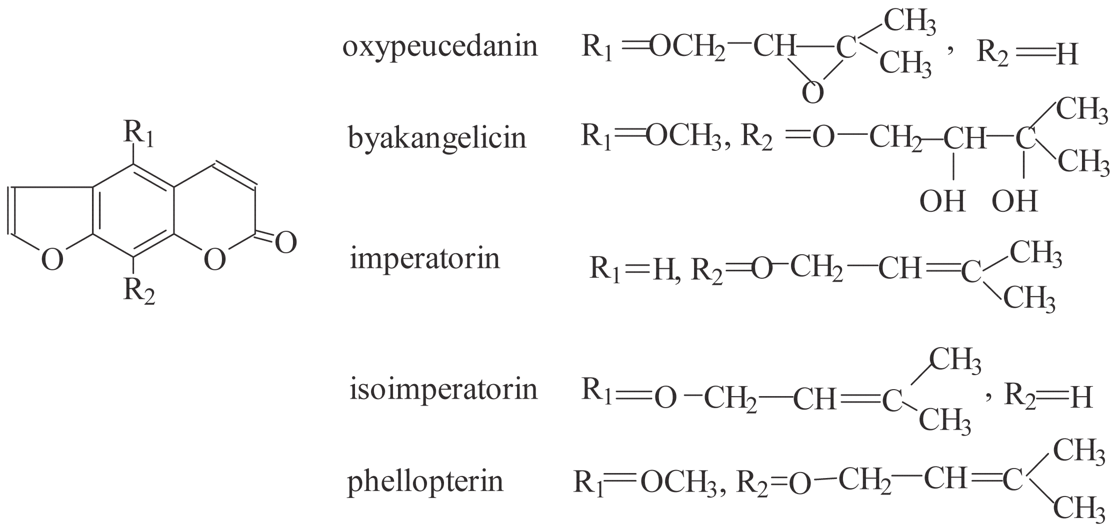
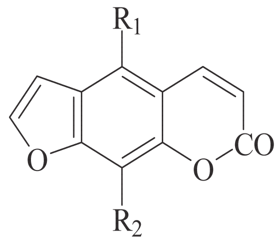


Fig. 1. Chemical structures of compounds

032-2-1. 白芷 Angelicae Dahuricae Radix

* Studies on Chemical Components of " Bai-Zhi " (Supplement 1) On Coumarins from " Japanese Bai Zhi " , M. Kozawa, K. Baba, K. Okuda, T. Fukumoto and K. Hata: *Shoyakugaku Zasshi,* **35**(2), 90-95 (1981)



I $R_1 = R_2 = H$
II $R_1 = H, R_2 = OCH_3$
III $R_1 = H, R_2 = OCH_2\text{-}CH = C(CH_3)_2$
IV $R_1 = OCH_2\text{-}CH = C(CH)_3\ _2, R_2 = H$
V $R_1 = H, R_2 = OH$
VI $R_1 = OCH_2\text{-}CH(OH)\text{-}C(OH)(CH_2)_2$
$R_2 = H$
VII $R_1 = R_2 = OCH_3$
VIII $R_1 = OCH_3, R_2 = OH$

IX $R_1 = OCH_3,$
$R_2 = OCH_2\text{-}CH(OH)\text{-}C(OH)(CH_3)_2$
X $R_1 = OCH_3,$
$R_2 = OCH_2\text{-}CO\text{--}CH(CH_3)_2$
XI $R_1 = OCH_3,$
$R_2 = OCH_2\text{-}CH((OH)\text{-}C(CH_3)=CH_2$
XV $R_1 = OCH_2\text{-}CH(OH)\text{-}C(CH_3)=CH_2$
$R_2 = H$
XVI $R_1 = OCH_2\text{-}CH((OH)\text{-}C((OCH_3)(CH_3)_2$
$R_2 = H$
XVII $R_1 = OCH_3,$
$R_2 = OCH_2\text{-}CH = C(CH_3)_2$
XVIII $R_1 = OCH_3,$
$R_2 = OCH_2\text{-}CH(OH)\text{-}C(OCH_3)(CH_3)_2$
XIX $R_1 = OCH_3,$
$R_2 = OCH_2\text{-}CH(OCOCH_3)\text{-}C(OH)(CH_3)_2$

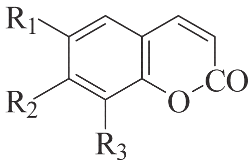
* I psoralen
II xanthotoxin
III imperatorin
IV isoimperatorin
V xanthotoxol
VI oxypeucedanin hydrate
VII isopimpinellin
VIII 8-hydrocy-5-methoxy-psoralen

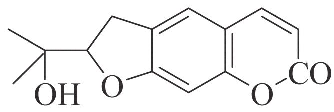
X byak-angelicin
X anhydrobyakangelicin
XI neobyakangelicol
XV pangelin
XVI 5-(2-hydroxy-3-methoxy-methylbutoxy)psoralen
XVII knidin
XVIII *tert*-***O***-methylbyakangelicin
XIX *sec*-***O***-acetylbyakangelicin

032-2-2. 白芷 Angelicae Dahuricae Radix

* Mithsugi Kozawa et al: *Shoyakugaku Zasshi*, **35**(2), 90-95 (1981)

** Continued 032-2-1





XIII marmesin

XII R_1=OCH_3, R_2=OH, R_3=H

XIV R_1=R_2=OCH_3, R_3=H

XX R_1=CH_2-CH=C$(CH_3)_2$, R_2=OH, R_3=H

XXI R_1=OCH_3, R_2=OCH_2-CH=C$(CH_3)_2$, R_3=H

XXII R_1=OCH_3, R_2=OH, R_3=CH_2-CH=C$(CH_3)_2$

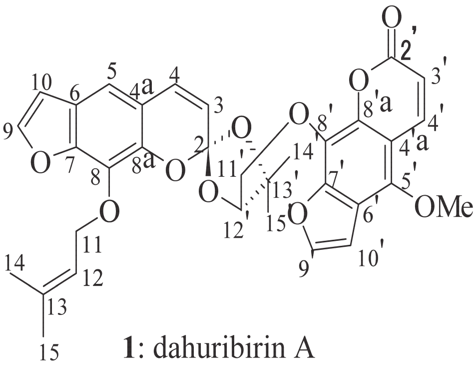
*XII	scopoletin	XXI	6-methoxy-7-isopentenyloxy-coumarin
XIV	aesculetindimethylether	XXII	cedrelopsin
XX	demethylsuberosin		

032-3-1. 白芷 Angelicae Dahuricae Radix

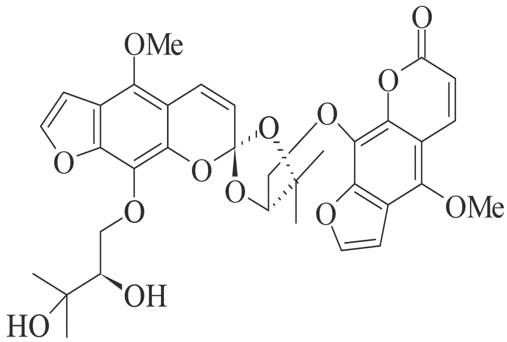
**Angelica dahurica* Benth. et Hook. var. *dahurica* Benth. et Hook. [Umbelliferae]

** Nian-He Wang, Koichiro Yoshizaki, and Kimiye Baba,
Chem. Pharm. Bull. **49**(9), 1085-1088 (2001)

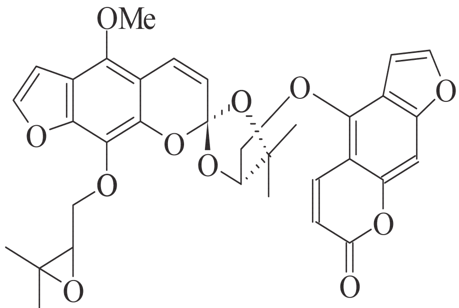
*** Bifuranocoumarins, Dahuribirin A-G, from "Japanese Bai Zhi"



1: dahuribirin A



2: dahuribirin B



3: dahuribirin C

Fig. 1. Chemical structures of compounds **1**--**3**

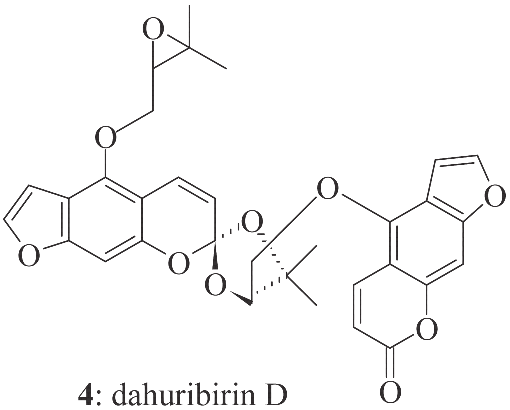
032-3-2. 白芷 Angelicae Dahuricae Radix

* *Angelica dahurica* Benth. et Hook. var. *dahurica*Benth. et Hook.

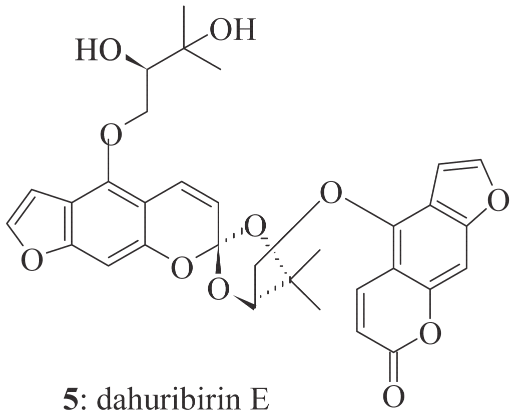
** Nian-He Wang, Koichiro Yoshizaki, and Kimiye Baba, *Chem. Pharm. Bull.* **49**(9), 1085-1088 (2001)

*** Continued 032-3-1

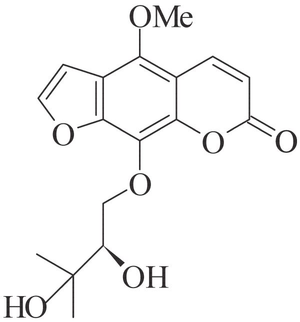
**** Bifuranocoumarins, Dahuribirin A-G, from "Japanese Bai Zhi"



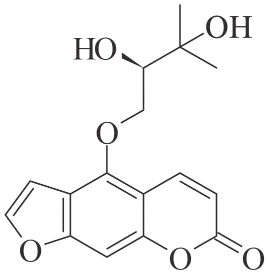
4: dahuribirin D



5: dahuribirin E



8: byakangelicin



9: oxypeucedanin hydrate

Fig. 1. Chemical structures of compounds

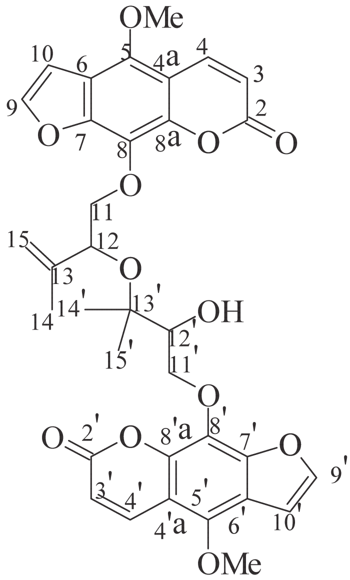
032-3-3. 白芷 Angelicae Dahuricae Radix

* *Angelica dahurica* Benth. et Hook. var. *dahurica* Benth. et Hook.

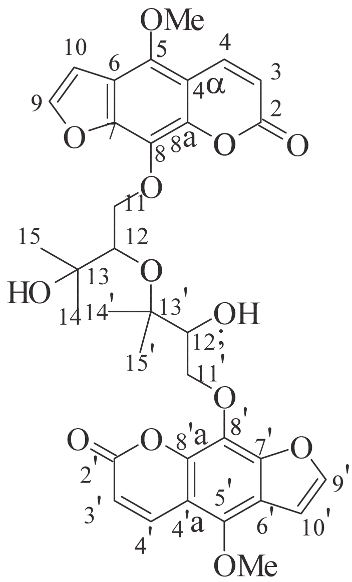
** Nian-He Wang, Koichiro Yoshizaki, and Kimiye Baba,
Chem. Pharm. Bull. **49**(9), 1085-1088 (2001)

*** Continued 032-3-2

**** Bifuranocoumarins, Dahuribirin A-G, from "Japanese Bai Zhi"



6. dahuribirin F



7. dahuribirin G

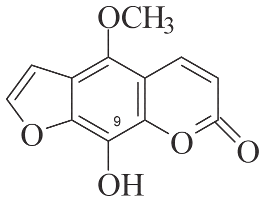
---

* Spirobifuranocoumarins, dahuribins A-E (**1**--**5**)
Bifuranocoumarins, dahuribrins F and G (**6** and **7**)

032-4. 白芷 Angelicae Dahuricae Radix

* *Angelica dahurica* Benth. et Hook. [Umbelliferae]

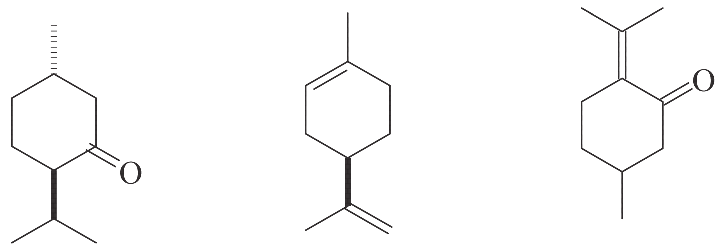
** X-L. Piao, S-H. Baek, M-K. Park and H-H, Park:
Biol Pharm. Bull., **27**(7), 1144-1146 (2004)



9-hydroxy-4-methoxypsoralen

II-3. 荊芥 Schizonepetae Herba

* *Schizonepeta tenuifolia* Briquet [Labiatae]



(+)-menthone (+)–limonene pulegone

Fig. 1. Chemical structures of compounds

II-4-1. 胡椒 Piperis Nigri Fructus

* *Piper nigrum* Linn'e [Piperaceae]

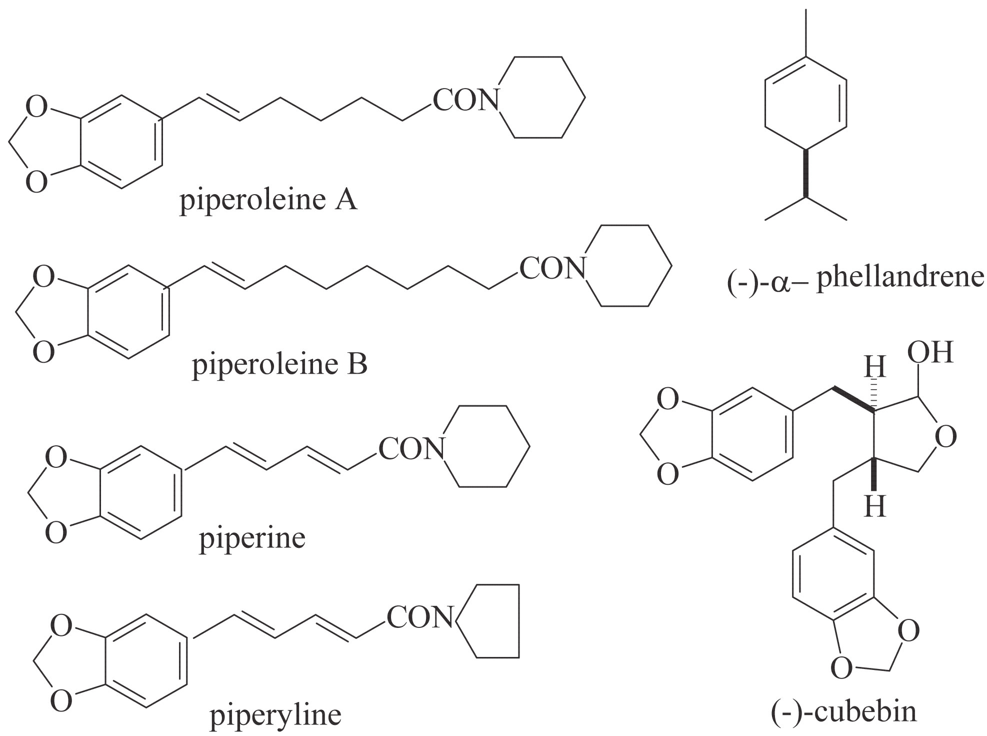
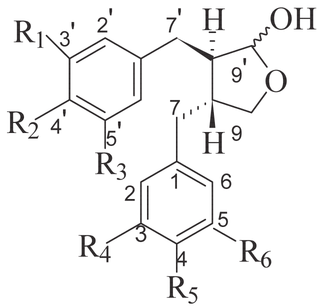


Fig. 1. Chemical structures of compounds

II-4-2. 胡椒葉 Piperis Nigri Folium

* 1. Melanogensis Stimulation in Murine B16 Melanoma Cells by *Piper nigrum* Leaf Extract and its Lignan Constituents, H Matsuda, Y Kawaguchi, M Yamazaki, N Hirata, S Naruto, Y Asanuma, T Kaihatsu, and M Kubo: *Biol. Pharm. Bull.* **27**(10), 1611-1616 (2004)

2. Testerone 5α−Reductase Inhibitory Active Constituents of *Piper nigrum* Leaf Noriko Hirata, Masashi Tokunaga, Shunsuke Naruto, Munekazu Iinuma, and Hideaki Matsuda: *Biol. Pharm. Bull.* **30(12), 2402-2405 (2007)



1: $R_1=R_2=R_4=R_5=OCH_2O$, $R_3=R_6=H$
2: $R_1=R_2=OCH_2O$, $R_4=R_5=OCH_3$, $R_3=R_6=H$
3: $R_1=R_2=R_3=R_4=R_5=OCH_3$, $R_6=H$
4: $R_1=R_2=R_3=R_4=R_5=R_6=OCH_3$
5: $R_1=R_2=R_3=OCH_3$, $R_4=R_5=OCH_2O$, $R_6=H$

Fig. 1. Chemical structures of compounds **1**--**5**

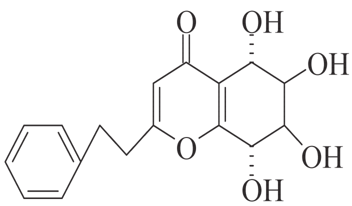
*
1: (-)-cubebin
2: (-)-3,4-dimethoxy-3,4-desmethylenedioxycubebin
3: (-)-3-desmethoxycubebinin

II-5-1. 沉香 Aquilariae Lignum

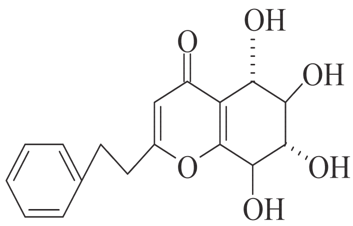
**Aquilaria agallocha* Roxb. [Thymelaeaceae]

** Y. Shimada, T. Tominaga, S. Kiyosawa : *YAKUGAKU ZASSHI* **106**(5), 391-397 (1989); T. Konishi, Y. Okutani, K. Iwagoe, S. Kiyosawa, Y. Shimada : *Shoyakugaku Zasshi* **43** (1), 1-6 (1989)

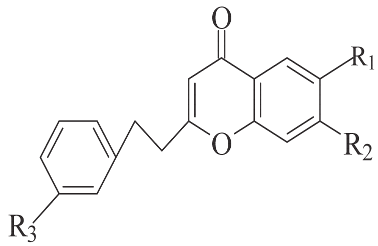
*** 2−(2−phenylethyl)-chromone):



AH_1 : (agarosterol)



AH_2: (isoagarosterol)



AH_3 : R_1=OH, R_2=R_3=H
AH_4 : R_1=OCH_3, R_2=R_3=H
AH_5 : R_1=R_3=OCH_3, R_2=H
AH_6 : R_1=R_2=OCH_3, R_3=H

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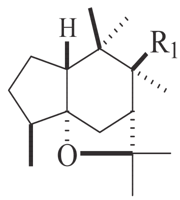
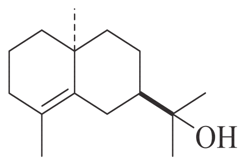
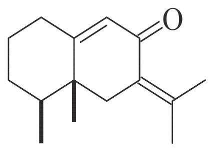
* K. Yoneda et al : *Shoyakugaku Zasshi* **40**(3), 252-258 (1986)



α−agarofuran



(-)-10-epi-γ—eudesmol



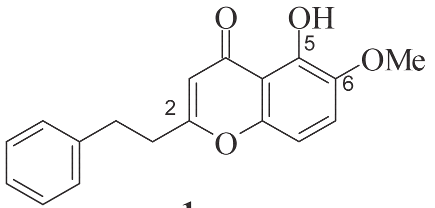
dihydrokaranone

II-5-2. 沉香 Aquilariae Lignum

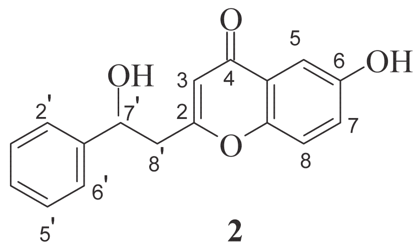
* *Aquilaria sinensis* Gilg. [Thymelaceae]

** T. Yagura, M. Ito, F. Kiuchi, G. Honda, and Y. Shimade, *Chem. Pharm. Bull.* **51**(5), 560-564 (2003)

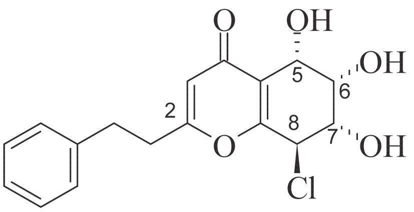
*** 2-(2-phenylethyl)-Chromone drivatives



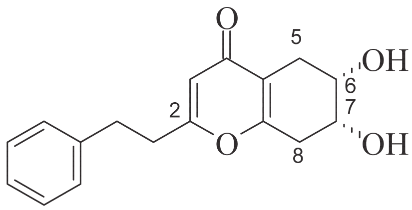
1



2



3



4

Fig. 1. Chemical structures of compounds **1**--**5**

* **1**: 5-hydroxy-6-methoxy-2-(2-phenylethyl)chromone
2: 6-hydroxy-2-(2-hydroxy-2-phenylethyl)chromone
3: 8-chloro-2-(2-phenylethyl)-5,6,7-trihydroxy-5,6,7,8-tetrahydrochromone
4: 6,7-dihydroxy-2-(2-phenylethyl)-5,6,7,8-tetrahydrochromone

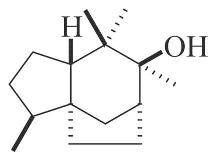
II-5-3. 沉香 Aquilariae Lignum

* *Aquilaria agalloca* Roxb., *A. malaccensis* Benth., *A. sinensis* Merill. [Thymelaceae]

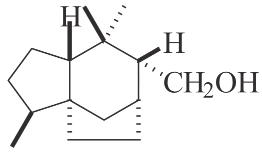
** Tsutomu Nakanishi: *YAKUGAKU ZASSHI,* **127**(12), 1979-1982 (2007)

*** A-type: *A,. agalloca*: Sesquiterpene--agarospirol, β–agarofuran, and norketoagarofuran
B-type: *A. malaccensis*: Prezizane Sesquiterpene: jinkohol, jinkohol II, Venecane(=nootkatane) type: jinkoh-eremol, kusunol; Spirovetivane type:agarospirol

Prezizan type

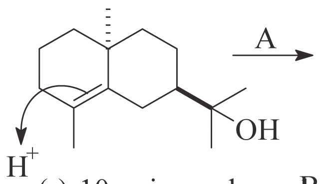


jinkohol

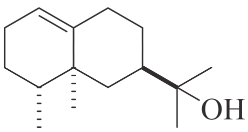


jinkohol II

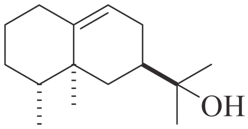
Valecane(nootkatane) type



(-)-10-epi-γ-eudesmol

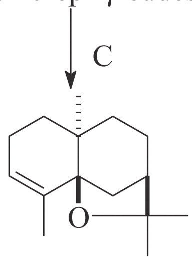


kusunol

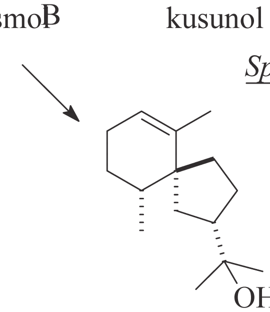


kinkoh-eremol

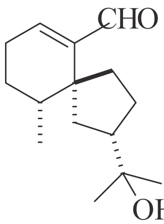
Spirovetivane type



α–agarofuran



agarospirol



oxo-agarospirol

* *A-type Agarwood:*
1). Verma K. R., Maheshwari M. L., Bhattacharyya S. C., *Tetrahedron,* **21,** 115 (1965)
2). Maheswari M. L., Jain T. C., Bates R. B., Bhattacharyya S. C. , *Tetrahedron,* **19,** 1079 (1963)
3). Maheswari M. L., Verma K. R., Bhattacharyya S. C., *Tetrahedron*, **19,** 1519 (1963)

* *B-type Agarwood:*
1). Nakanishi T., Jain T. C., Bates R. B., Bhattacharyya S. C., *Tetrahedron,* **19,** 1079 (1963)
2). Nakanishi T., Yamagata E., Yoneda K.,Miura I., *Phytochemistry,* **20,** 1597-1599 (1981)

III

・內分泌系疾患

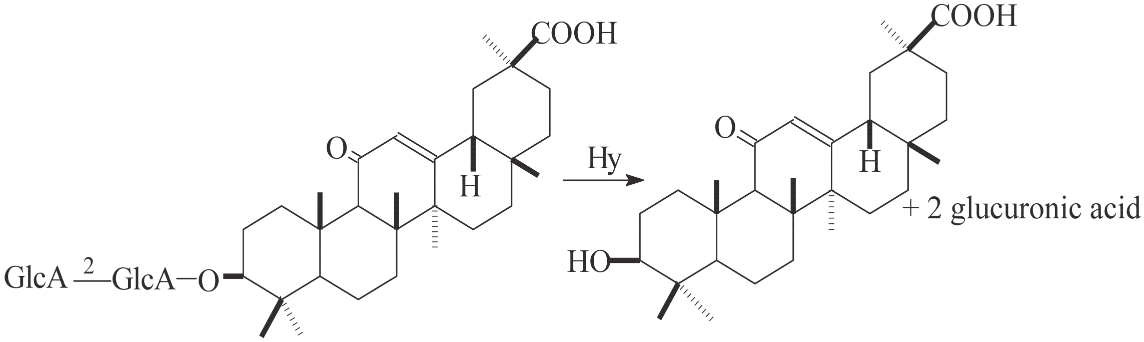
033 ~ 038

III-1

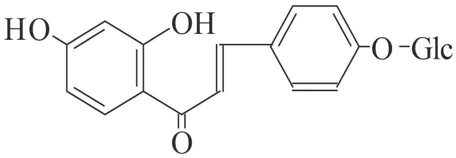
△：成分未表示

033-1-1. 甘草 Glycyrrhizae Radix

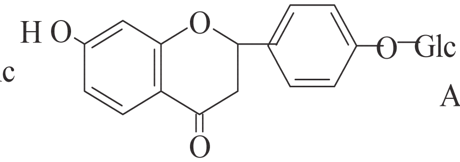
* *Glycyrrhiza uralensis* Fischer et DC. [Leguminosae]



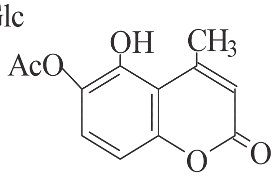
glycyrrhizin glycyrrhetic acid



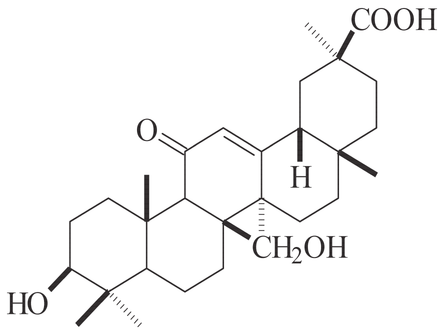
isoliquiritin



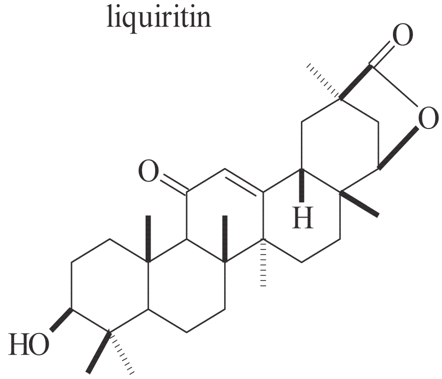
liquiritin



liqcoumarin



glabric acid

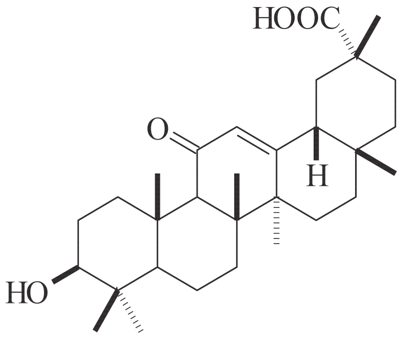


gabrolide

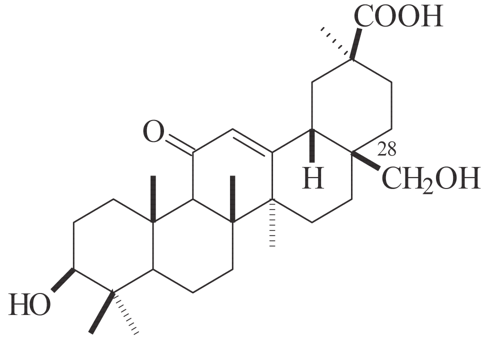
Fig. 1. Chemical structures of compounds

033-1-2. 甘草 Glycyrrhizae Radix

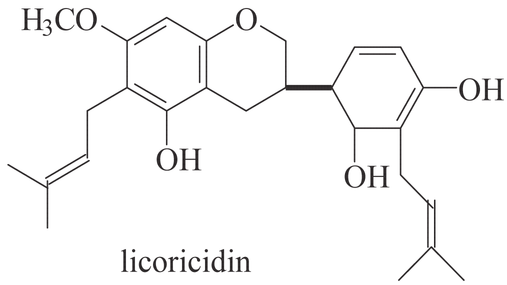
* *Glycyrrhiza uralensis* Fischer et DC. [Leguminosae]



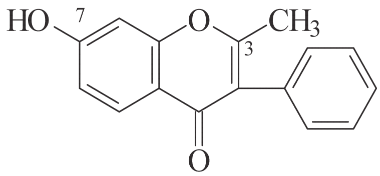
liquiritic acid



28-hydroxyglycyyrrhetic acid



licoricidin



2-methyl-7-hydroxyisoflavone

Fig. 1. Chemical structures of compounds

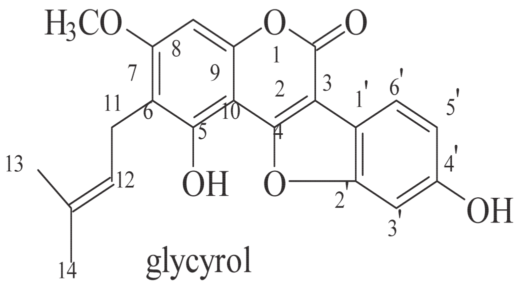
** Survey of Glycyrrhizae Radix resources in Mongolia: chemic assessment of the underground part of *Glycyrrhiza uralensis* and comparison with Chinese Glycyrrhizae Radix: Komatsu et al : *J Nat Med* **63**(2) 137-146 (2009)[55]

Eight major bioactive constituents: **1**). glycyrrhizin, **2**). liquiritin apioside, **3**). liquilitin, **4**). liquiritigenin, **5**). isoliquiritin apioside, **7**). isoliquiritin and **8**). isoliquiritigenin.

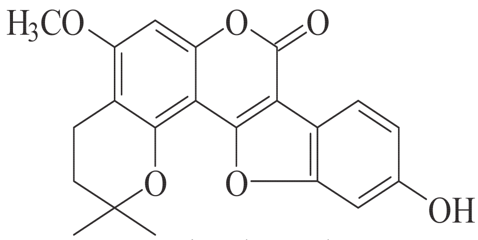
033-1-3. 甘草 Glycyrrhizae Radix

* *Glycyrrhiza uralensis* Fischer et DC. [Leguminosae]

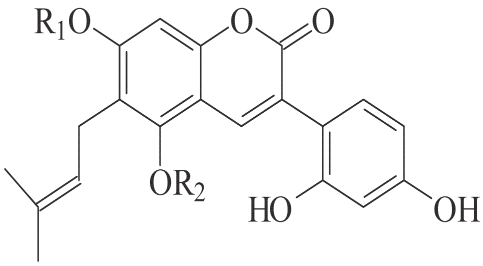
** Potent Antibacterial Action of Coumarin Derivatives from Licorice Roots against *Streptococcus mutans*:
M. Hattori, K. Miyachi, Y. Shu, N. Kakiuchi and T. Namba:
Shoyakugaku Zasshi, **40** (4), 406-412 (1986)



glycyrol



isoglycyrol



glycycoumarin (R_1=H, R_2=CH_3)
glycyrin (R_1=CH_3, R_2=CH_3)

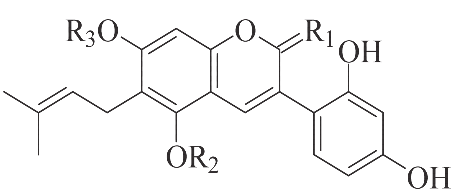
Fig. 1. Structures of Antibacterial Coumarins from Licorice Roots

* (anti-bacterial action; anti-plaque action; dental caries)

033-1-4. 甘草 Glycyrrhizae Radix

* *Glycyrrhiza uralensis* Fisher et DC. [Leguminosae]

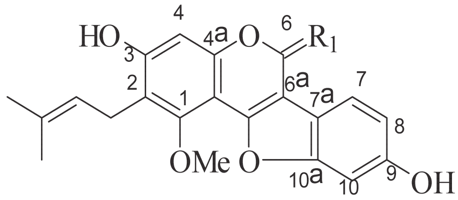
** G. Kusano, M. Shibano, H. Watanabe, and K. Ozaki, *YAKUGAKU ZASSHI*, **123** (8), 619-631 (2003)



1: glycoumarin R_1=O, R_2=CH_3, R_3=H

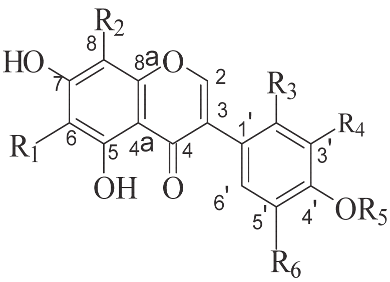
3: dehydroglyasperin C R_1=H_2, R_2=CH_3, R_3=H

7: glycyrin R_1=O, R_2=R_3=CH_3



5: glycyrol R_1=O

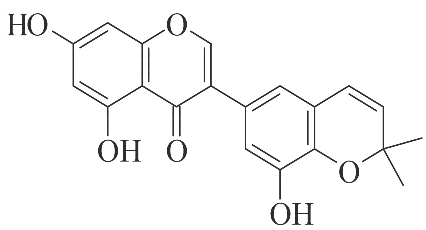
6: glyurallin A R_1=H_2



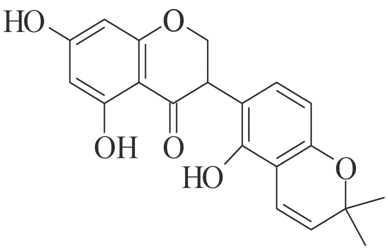
8 : gankaonin N R_1=prenyl, R_2=R_4=R_6=H, R_3=OH, R_5=CH_3

11: 8-*r,r*-dimethylallylwighteone R_1=R_2=prenyl, R_3=R_4=R_5=R_6=H

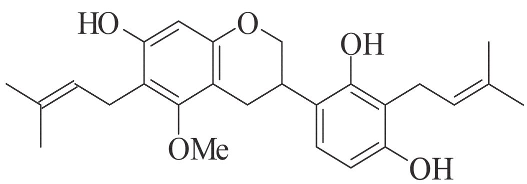
10: glyurallin B R_1=R_3=R_5=H, R_2=R_4=prenyl, R_6=OH



2: semilicoisoflavone B



4: licoisoflavanone



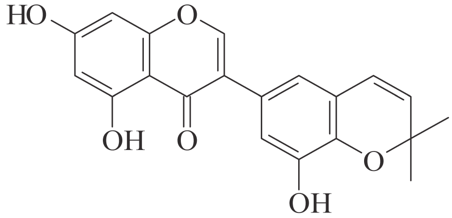
9: licoricidine

Fig. 1. HPLC Profile of EtOAc Extract from the Underground Part of *Glycyrrhiza uralensis* and Index Compounds

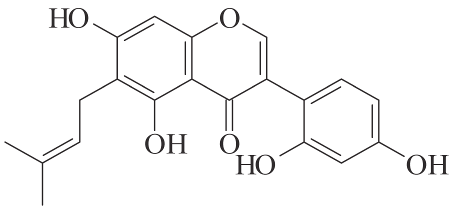
033-1-5. 甘草 Glycyrrhizae Radix

* Aldose Reductase Inhibitory Compounds from *Glycyrrhiza uralensis*

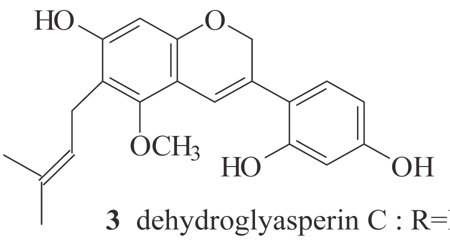
** Yeon Sil Lee, Seon Ha Kim, Sang Hoon Jung, Jin kyu Kim,
Cheol-Ho Pan, and Soon Sung Lim:
Biol. Pharm. bull. **33**(5) 917-921 (2010)



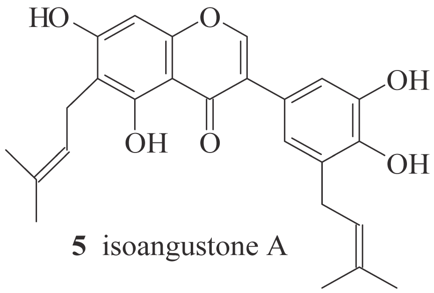
1 semilicoisoflavone B



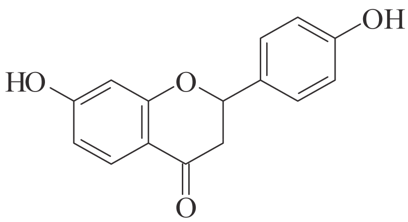
2 7-***O***-methylluteone



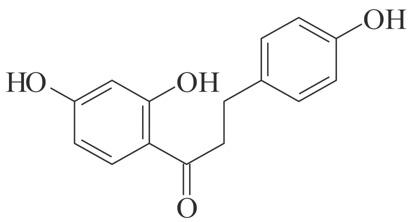
3 dehydroglyasperin C : R=H
4 dehydroglyasperin D : R=CH_3



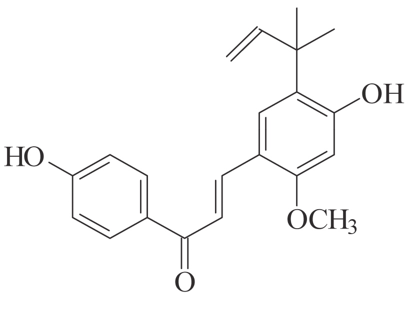
5 isoangustone A



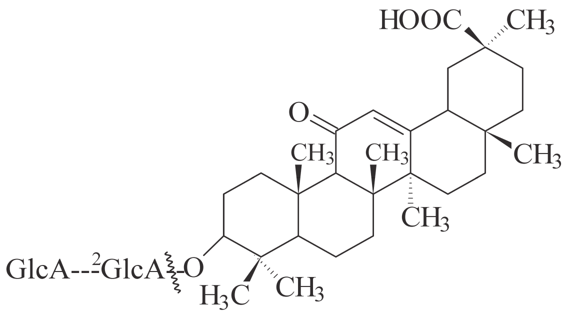
6 liquiritigenin



7 isoliquiritigenin



8 licochalcone A



9 glycyrrhizin
10 glycyrrhetinic acid

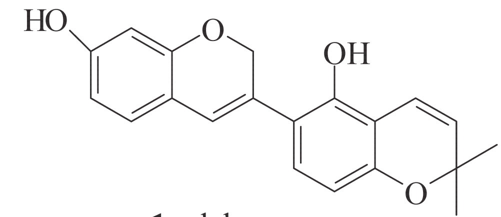
Fig. 1. Chemical Structures of Isolated Compounds from the Roots of *Glycyrrhiza uralensis* Fisch. et DC.

* Semilicoisoflavone B, a prenylated isoflavone with *r,r*-dimethylchromene moiety, from *G. uralensis* exhibited strong rAR and rhAR inhibitory activity, and it can be said to be potential lead compounds for further development for diabetic complication.

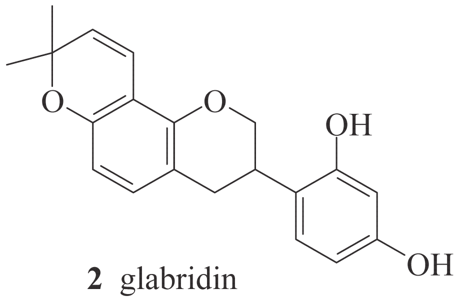
033-2-1. 甘草 Glycyrrhizae Radix

* *Glycyrrhiza glabra* L.; *G. inflata* [Leguminosae]

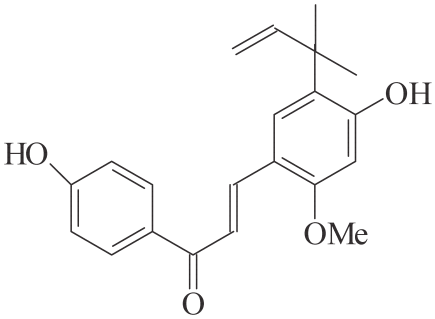
(I)** Identification of Antimicrobial and Constituents from Licorice of Russian and Xinjiang : K. Okada, Y. Tamura, M. Yamamoto, Y. Inoue, R. Takagaki, K. Takahashi, S. Demizu, K. Kajiyama, Y. Hiraga, and T. Kinoshita: *Chem. Pharm. Bull.* **37** (9), 2528-2530 (1989)



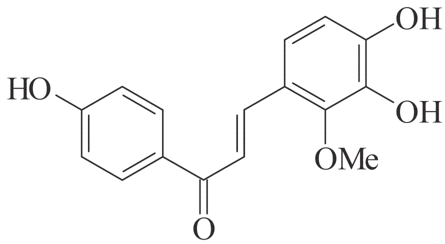
1 glabrene



2 glabridin



3 licohalcone A



4 lichohalcone B

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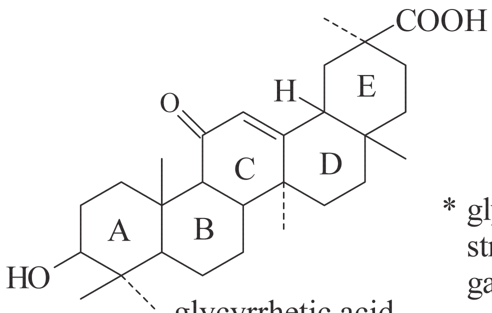
(2)* Antiulcer Activities of Glycyrrhetinic Acid Derivatives in Experimental Gastric Lesion Models : S. Yano, M. Harada, K. Watanabe, K. Nakamura, Y. Hatakeyama, S. Shibata, K. Takahashi, T. Mori, K. Hirabayashi, M. Takeda and N. Nagata: *Chem. Pharm. Bull.* **37**(9), 2500-2504 (1989)



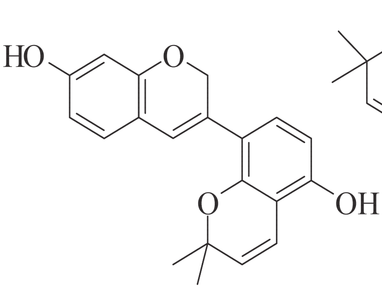
glycyrrhetic acid
(glycyrrhetinic acid)

* glyrcyrrhetinic acid; antiulcer activity, stress ulcer; cytoprotection; gastric secretion; dihemiphthalate spd.

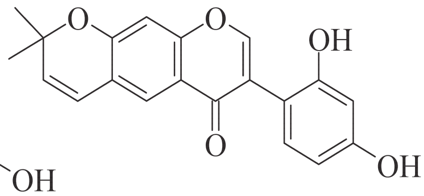
033-2-2. 甘草 Glycyrrhizae Radix

* *Glychyrrhiza glabra* Linn'e [Leguminosae]

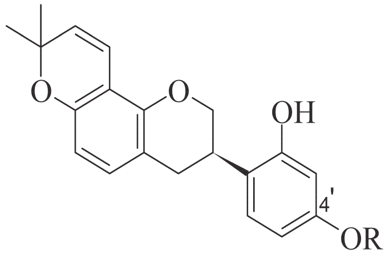
* * Genjiro Kusano et al: *YAKUGAKU ZASSHI,* **123** (8), 619-621 (2003)



1: glabrene

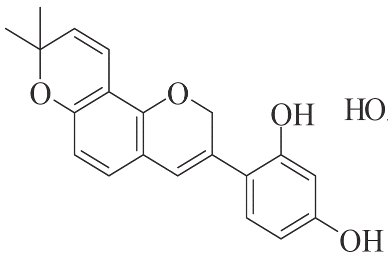


2: parvisoglavone B

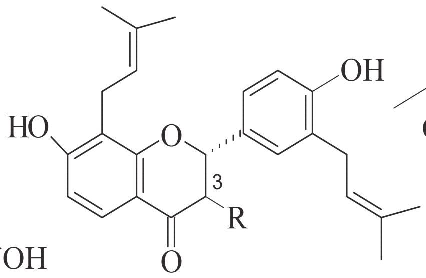


3: glabridin R=H

7: 4'-O-methylglabridin R=CH_3

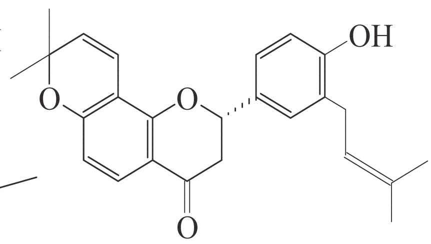


4: 3,4-didehydroglabridin

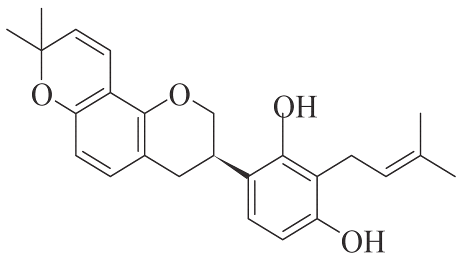


5: 3-hydroxy-glabrol R=OH

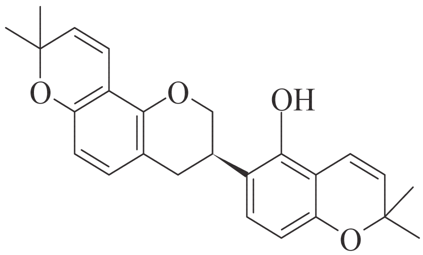
6: glabrol R=H



8: shinflavanone



9: hispaglabridin A



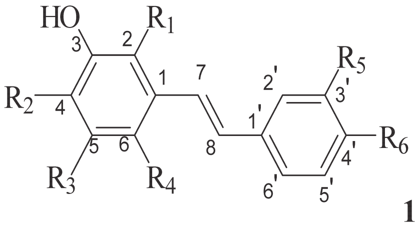
10: hispaglabridin B

Fig. 1. HPLC Profile of EtOAc Extract from the Underground Part of *Glycyrrhiza glabra* and Index Compounds

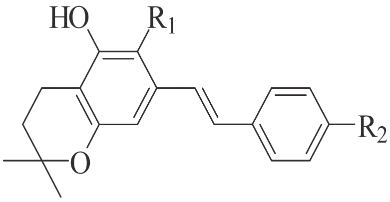
033-3-1. 甘草 *Glycyrrhisa* Species

* *Glycyrrhiza flavescens*

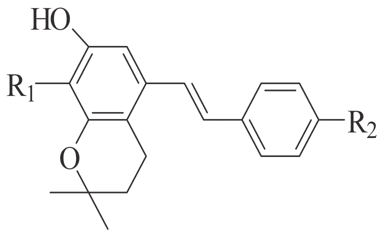
** G. Kusano et al: *YAKUGAKU ZASSHI* ,**123**(8), 619-631 (2000)



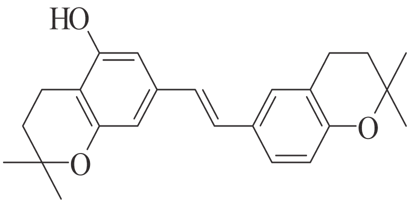
1: flavestin A $R_1=R_2=R_4=H$, $R_3=OMe$, $R_5=$prenyl, $R_6=OH$
2: chiricanine A $R_1=R_4=R_5=R_6=H$, $R_2=$prenyl, $R_3=OH$
3: flavestin B $R_1=$prenyl, $R_2=R_4=R_5=R_6=H$, $R_3=OH$
4: flavestin C $R_1=R_2=$prenyl, $R_3=R_6=OH$, $R_4=R_5=H$
5: flavestin D $R_1=R_4=H$, $R_2=R_5=$prenyl, $R_3=R_6=OH$
10: longistylin A $R_1=R_4=R_5=R_6=H$, $R_2=$prenyl, $R_3=OMe$
11: longistylin C $R_1=R_2=R_5=R_6=H$, $R_3=OMe$, $R_4=$prenyl
13: longistylin B $R_1=R_2=$prenyl, $R_3=OH$, $R_4=R_5=R_6=H$



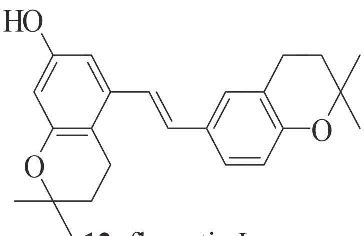
6: flavestin E $R_1=$preny
9: flavestin H $R_1=H$



7: flavestin F $R_1=$prenyl, $R_2=H$
8: flavestin G $R_1=R_2=H$



14: flavestin J



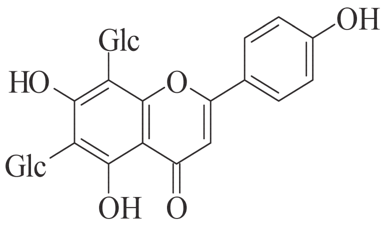
12: flavestin I

Fig. 1. Chemical structures of compounds **1**--**14**

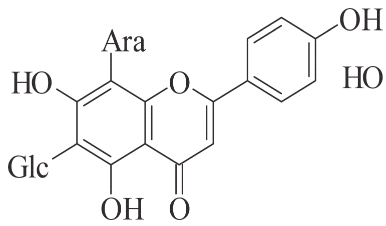
033-3-2. 甘草 *Glycyrrhiza* Species

* Pharmaceutical Botanical Studies on Some *Glycyrriza* Species:
Genjiro Kusano et al : *YAKUGAKU ZASSHI*, **123**(8), 619-631 (2003)

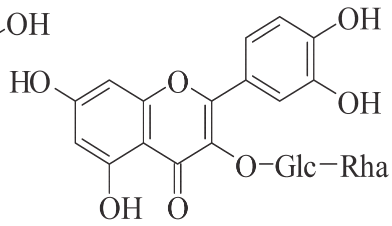
** Aerial Part (MeOH)



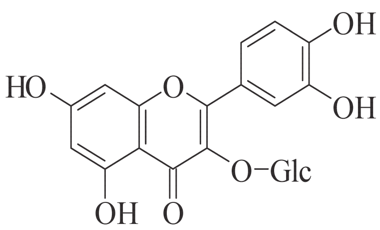
1: vicenin



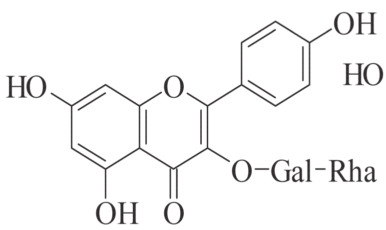
2: schaftoside



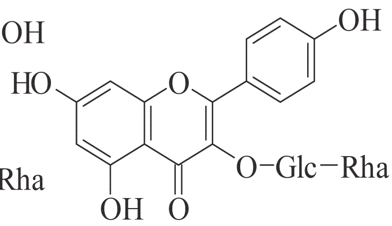
3: rutin



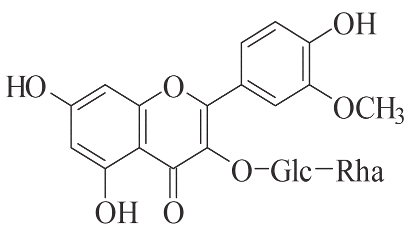
4: isoquercetin



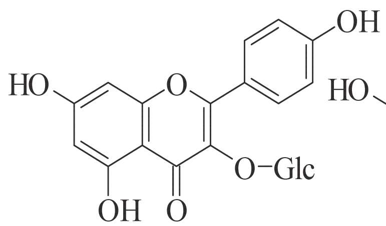
5: kaempferol-3-***O***-rhamnosylgalactoside



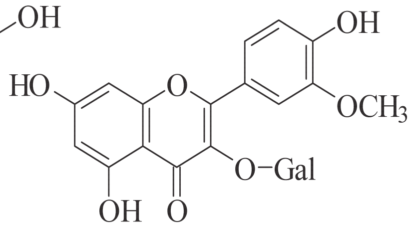
6: nicotiflorin



7: narcissin



8: astragalin



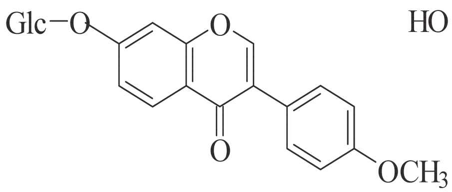
9: cacticin

Fig.1. HPLC Profiles of MeOH Extracts from Aerial Part of *Glycyrrhiza* Species and Index Compounds

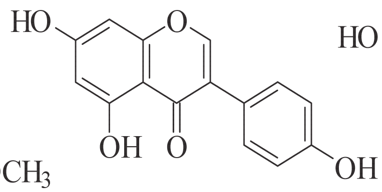
033-3-3. 甘草 *Glycyrrhiza* Species

* Genjiro Kusano et al: *YAKUGAKU ZASSHI*, **123** (8), 619-631 (2003)

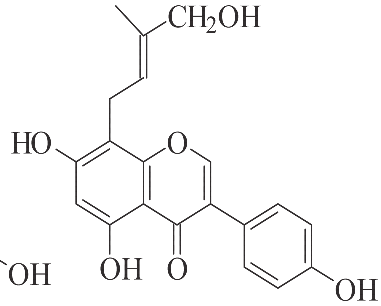
** Aerial Part (MeOH)



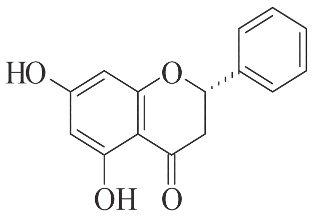
10: ononin



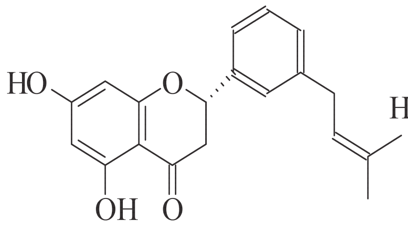
11: genistein



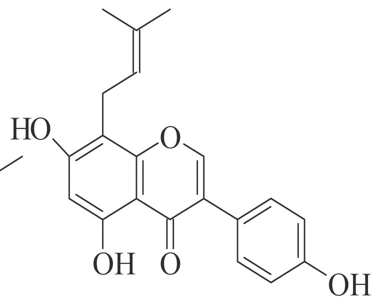
12: gancaonin C



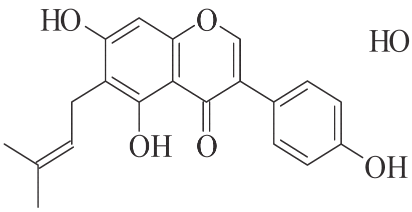
13: pinocembrin



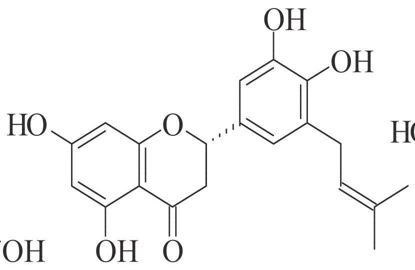
14: licoflavanone



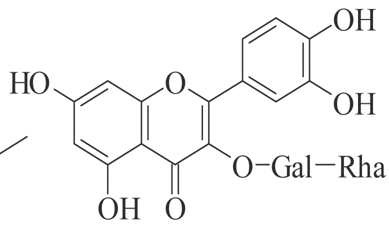
15: lipiwightenone



16: wightenone



17: sigmoidin B



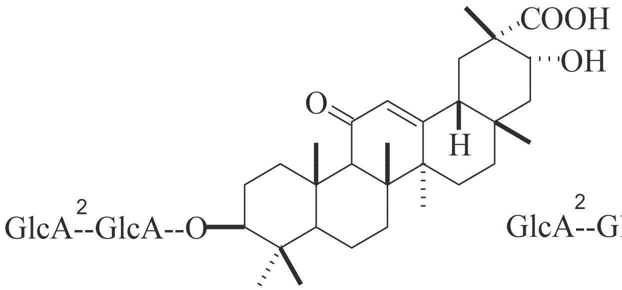
18: bioquercetin

Fig. 1. Chemical structures of compounds **10--18**

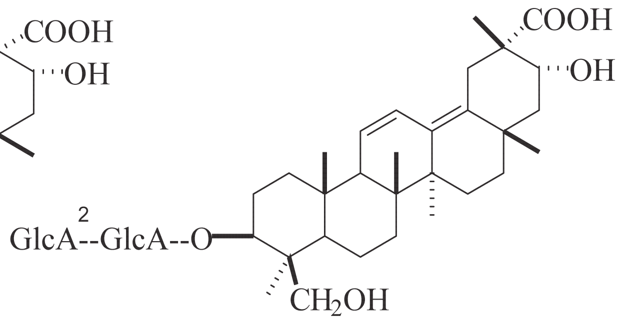
033-3-4. 甘草 *Glycyrrhiza* Species

* *Glycyrrhiza macedonica*

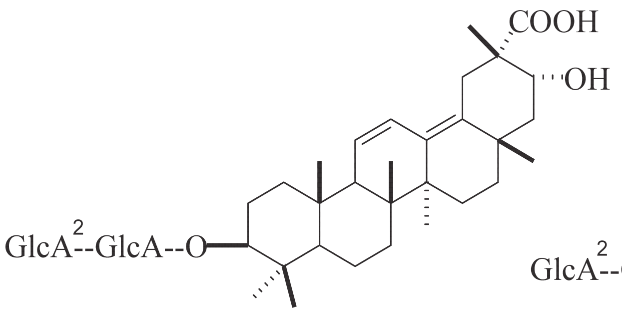
** G. Kusdano et al: *YAKUGAKU ZASSHI,* **123** (8), 619-631 (2003)



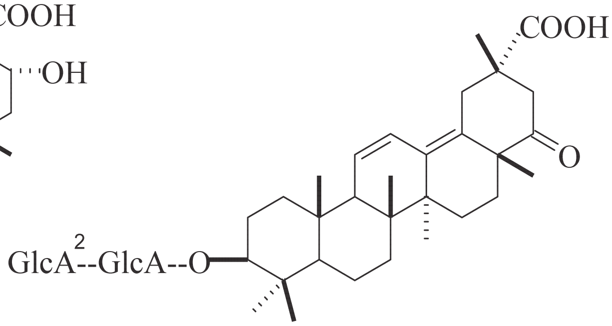
macedonoside A



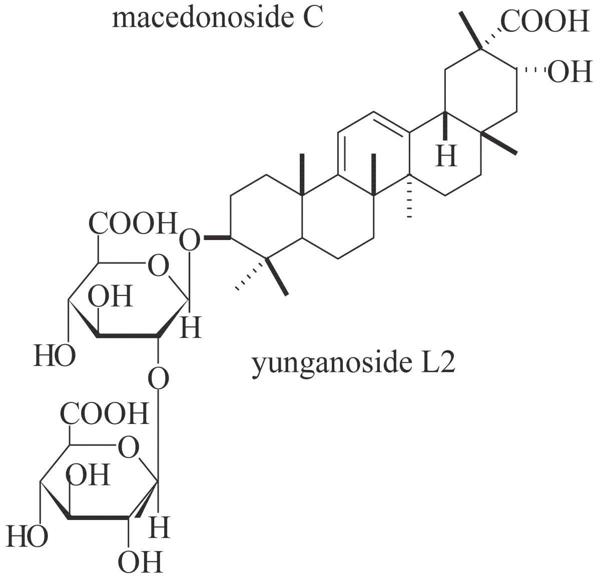
macedonoside B



macedonoside C



macedonoside D



yunganoside L2

Fig. 1. HPLC Profile of MeOH Extract from the Underground Part of *G. macedonica* and Index Compounds

033-3-5. 甘草 *Glycyrrhiza* Species

* Genjiro Kusano, Makio Shibano, Hitoshi Watanabe, and Kazuo Ozaki, *YAKUGAKU ZASSHI,* **123** (8), 619-631 (2003)

** Underground Part

1) *Glycyrrhiza uralensis*:

1: glycycoumarin, **2**: semilicoisoflavone B, **3**: dehydroglyasperin C, **4**: licoisoflavanone, **5**: glycyrol, **6**: glyurallin A, **7**: glycyrin, **8**: gancaonin N, **9**: licoricidine, **10**: glyurallin B, **11**: 8-*r,r*-dimethylallylwightenone

* H_2O Soluble Portion:

Alkaloid: tetrahydroquinoline alkaloid [*Arch.Pharm.Res.,* **13**, 101-102 (1990)]
pyrrolopyrimidine alkaloid [*Arch. Pharm. Res.,* **13**, 103-103 (1990)]

2) *G. glabra*:

1: glabrene, **2**: parvisoflavone B, **3**: glabridin, **4**: 3,4-didehydroglabridin, **5**: 3-hydroxyglabrol, **6**: glabrol, **7**: 4'-***O***-methylglabridin, **8**: shinflavanone, **9**: hispaglabridin A, **10**: hispaglabridin B.

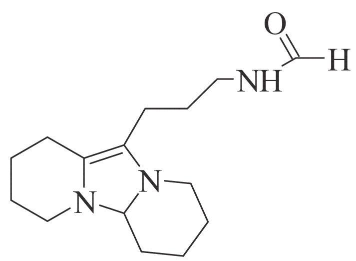
Alkaloid: anabasine, **licorine A** [G. Kusano et al : The 118 Annual Meeting of Japan Pharm. Soc. Abstract Papers, p. 157 (1998) Kyoto]

3) *G. macedonica*:

macedonoside A, B, C, D and yunganoside L2

4) *G. flavescens*:

1: flavestin A, **2**: chiricanine A, **3**: flavestin B, **4**: flavestin C, **5**: flavestin D, **10**: longistylin A, **11**: longostylin C, **13**: longystilin B, **6**: flavestin E, **9**: flavestin H, **7**: flavestin F, **8**: flavestin G, **12**: flavestin I, **14**: flavestin J.

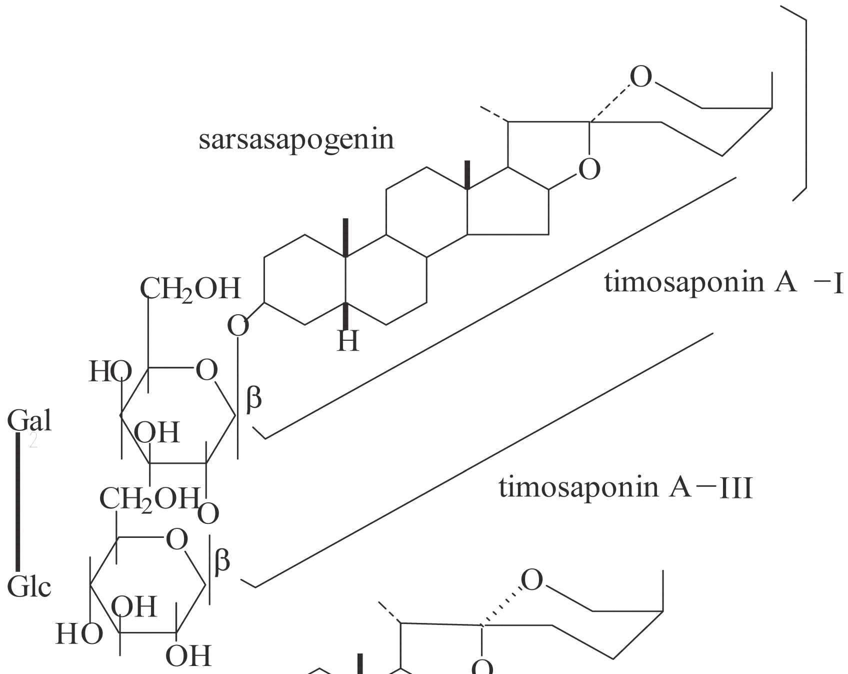


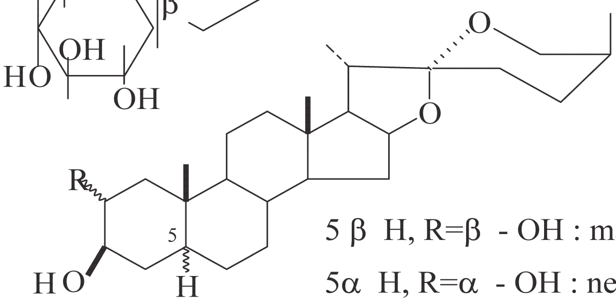
* Licorine A (from *G. uralensis* and *G. glabra*)

Contained compound in *G. uralensis* and *G. glabra*
2-piperidinyl acetate, methyl 2-piperidinyl acetate, anabasine, licorine A.

034-1. 知母 Anemarrhenae Rhizoma

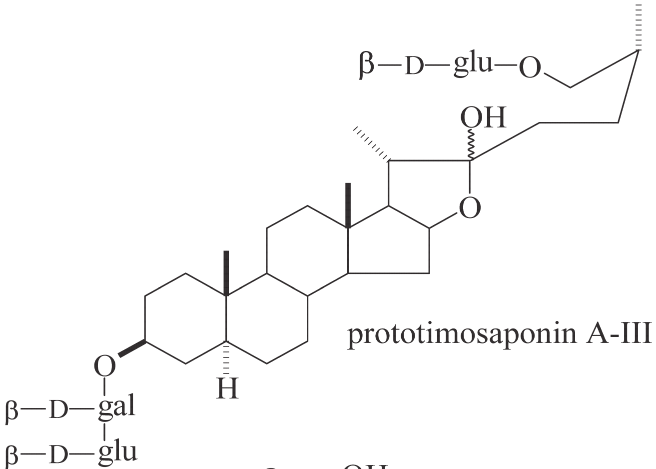
* *Anemarrhena asphodeloide* Bunge [Liliaceae]



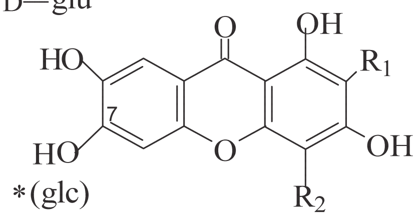


5 β H, R=β - OH : markogenin

5α H, R=α - OH : neogitogenin



prototimosaponin A-III



	R_1	R_2
mangiferin	Glc	H
isomangiferin	H	Glc

* mangiferin-7-*O*-β–D-glucopyranoside

034-2-1. 知母 Anemarrhenae Rhizoma

* New Steroidal Saponins from *Anemarrhena asphodeloides* Bunge (Liliaceae)
S.Saito, S.Nagase, and K. Ichinose:
Chem Pharm Bull, **42**(11), 2342-2345 (1994)

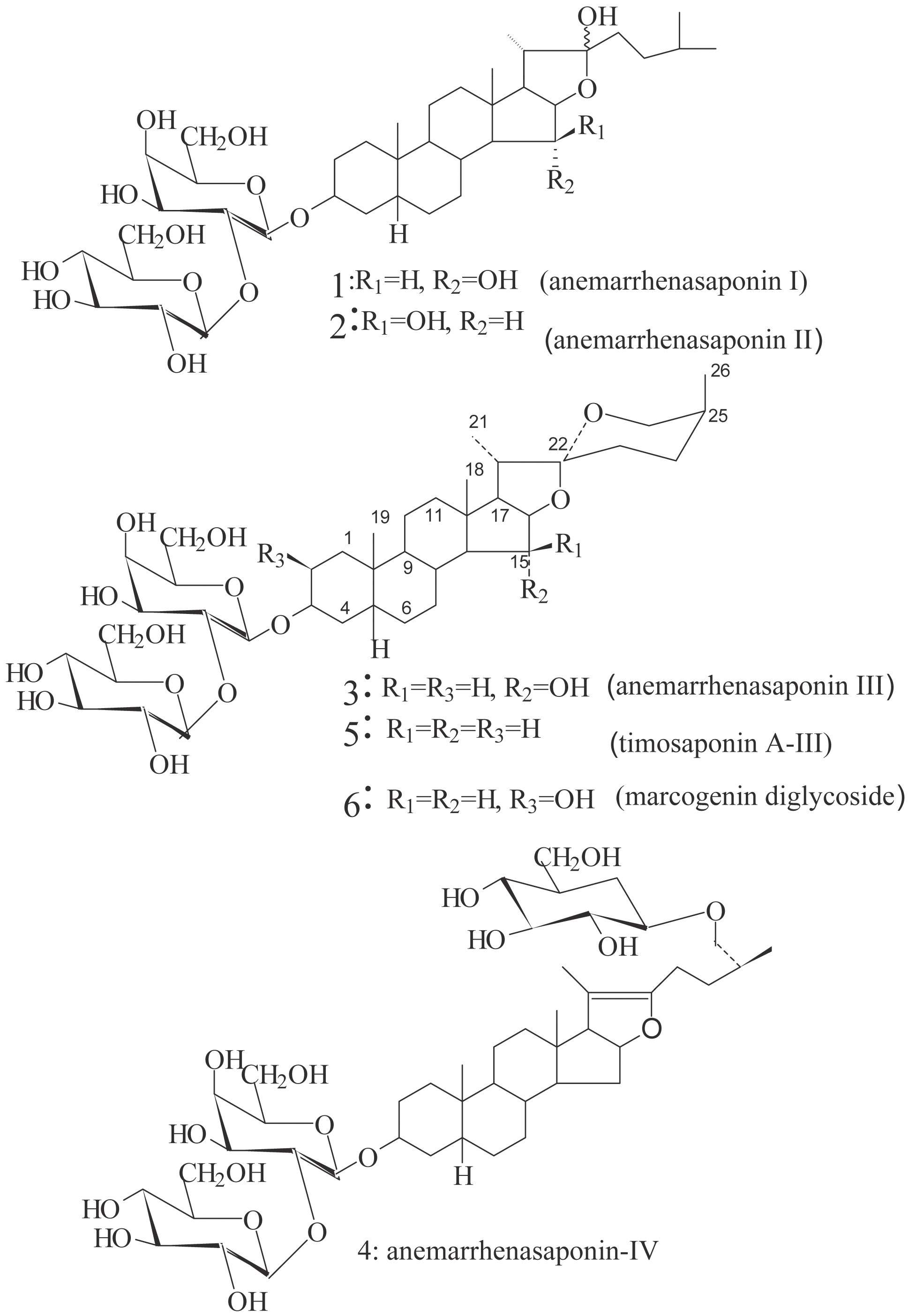
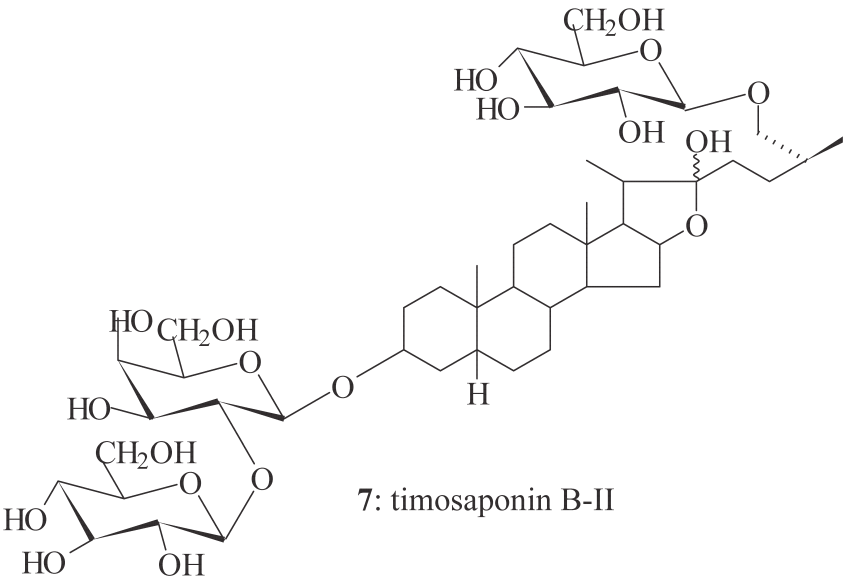


Fig. 1. Chemical structures of compounds **1**--**6**

034-2-2. 知母 Anemarrhenae Rhizoma

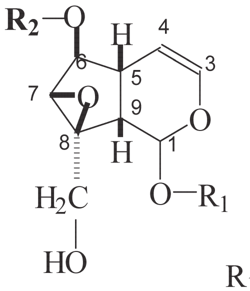
* Ichinose K, et al: *Chem Pharm Bull,* **42** (11) 2343-2345 (1994)

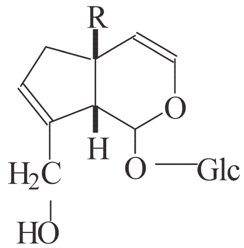


7: timosaponin B-II

035-1. 地黃 Rehmanniae Radix

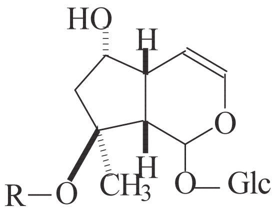
* *Rehmannia glutinosa* Liboschitz var. *hueichingensis* Chao et Shih
R. glutinosa Liboschitz. var. *purpurea* Makino [Scrophulariaceae]





	R_1	R_2
catalpol	Glc	H
rehmannioside A	Glc ^{6}—Gal	H
rehmannioside B	Glc	Glc

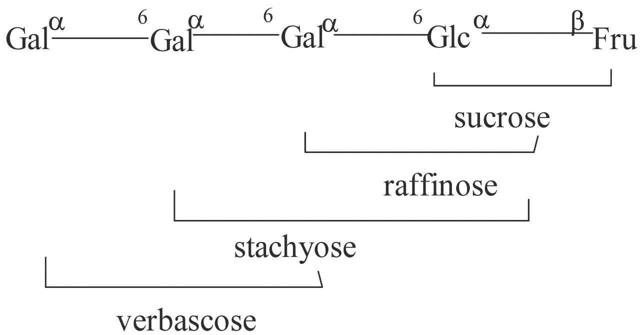
aucubin	R=H
melittoside	R=O—Glc
rehmannioside D	R=O—Glc^{2}—Glc

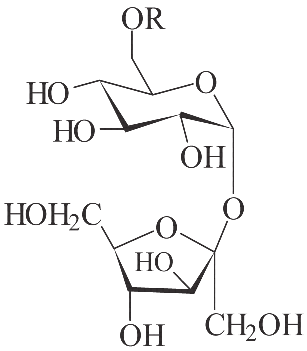


leonuride R = H
rehmannioside C: R = Glc

Gal$^{\beta}$—^{6}Gal$^{\beta}$—^{4}Glc

manninotriose



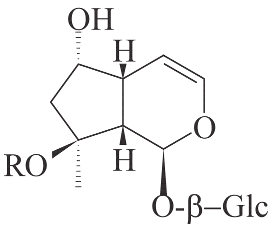


Sucrose : R=H
Raffinose : R=(-D-galactopyranosyl (1-6)
Stachyose : R=(-D-galactopyranosyl (1-6), (-D-galactopyranosyl (1-6)

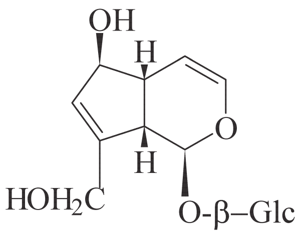
Fig. 1. Chemical structures of compounds

035-2. 地黄 Iridoid Glycosides of Rehmanniae Radix

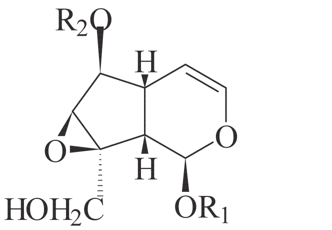
* H. Oshio, Y. Naruse and H. Inouye:
Shoyakugaku Zasshi **35** (4), 291-294 (1981)



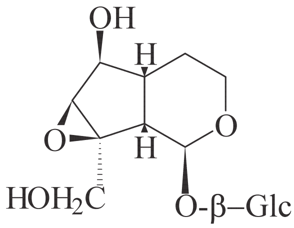
1: R=H
6: R=α–Gal



2: R=H
3: R=OH
8: R=O-β–Glc
10: R=O-β–Soph



4: R_1=β–Glc, R_2=H
7: R_1=β–Mel, R_2=H
9: R_1=β–Glc, R_2=α–Gal



5

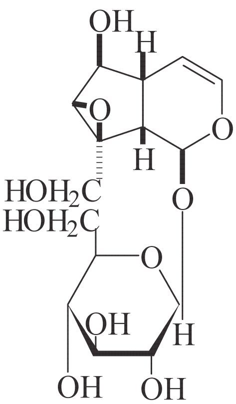
* Glc: glucose; Gal: galactose; Soph: sophorose; Mel: melibiose

Fig. 1. Chemical structures of compounds **1**--**10**

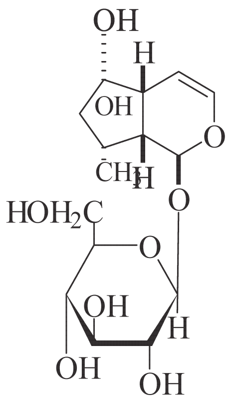
* **1**: leonuride	**6**: rehmannioside C
2: aucubin	**7**: rehmannioside A
3: monomelittoside	**8**: melittoside
4: catalpol	**9**: rehmannioside B
5: dihydrocatalpol	**10**: rehmannioside D

035-3. 地黃 Rehmanniae Radix

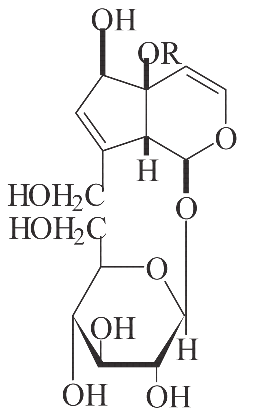
* On the Constituents of *Rehmannia glutinosa* Libosch.[Scrophulariaceae]
I. Kitagawa, Y. Fukuda, T. Taniyama, and M. Yoshikawa,
Chem. Pharm. Bull. **43** (7), 1096-1100 (1995)



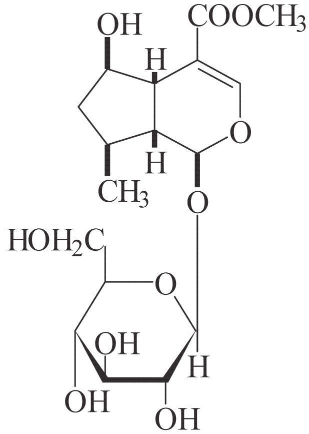
catgalpol (**1**)



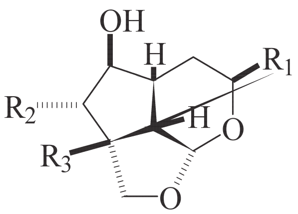
leonuride (**2**)



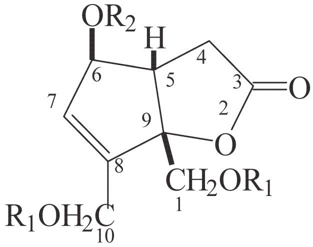
monomelittoside (**3**): R=H
melittoside (**4**): R=glu
rehmannioside D(**5**): R=soph



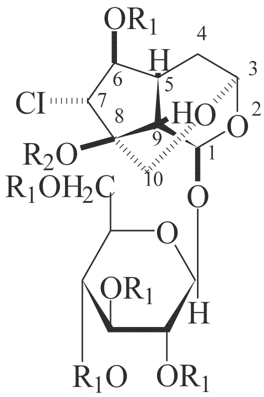
dihydrocornin (**6**)



rehmaglutin A (**7**)
R1=H, R2=R3=OH
rehmaglutin B (**8**)
R1=R3=OH, R2=Cl
rehmaglutin D (**9**)
R1=H, R2=Cl, R3=OH



rehmaglutin C (**10**)
R_1=R_2=H



glutinoside (**11**)
: R_1=R_2=H

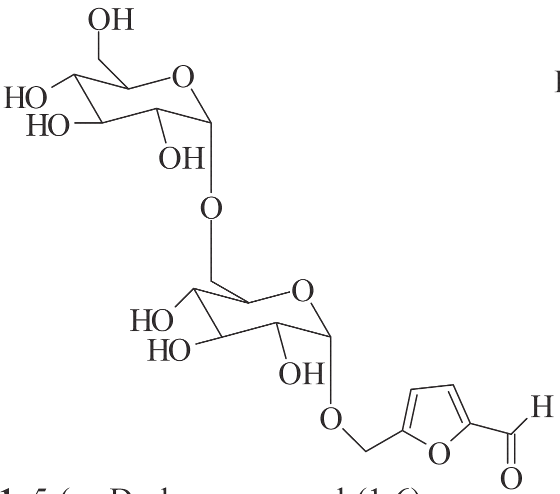
Fig. 1. Chemical structures of compounds **1--11**

035-4. 地黄 Rehmanniae Radix

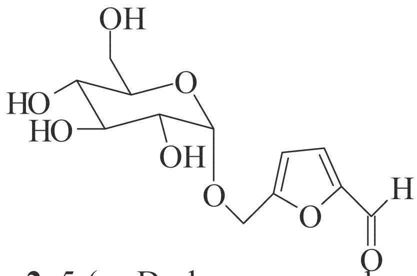
* *Rehmannia glutinosa* Libosch. [Scrophulariaceae]

** 5-Hydroxymethyl-2-furfural, a clinical trials agent for sickle cell anemia, and its mono/di-glucosides from classically processed steamed Rehmanniae Radix

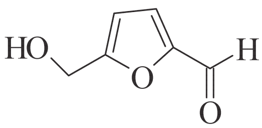
*** An-Shen Lin, Keduo Qian, Yoshihide Usami, Li Lin, Hideji Itokawa, Charleson Hsu, Susan L. Morris-Natschke, Kuo-Hsiung Lee: *J Nat Med,* **62** (2), 164-167 (2008)



1: 5-(α–D-glucopyranosyl-(1-6)-
-α–D-glucopyranosyloxymethyl)-
-2-furancarboxaldehyde



2: 5-(α–D-glucopyranosylocymethyl)-
-2-furancarboxaldehyde



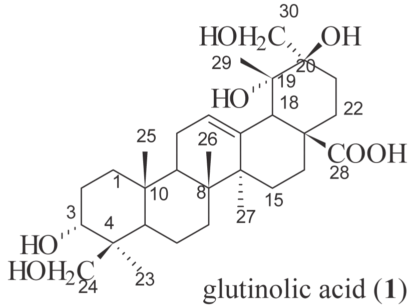
3: 5-hydroxymethylfurfural

Fig. 1. Compounds **1**--**3** from Steamed Rehmanniae Radix

035-5. 地黃 Rehmanniae Radix

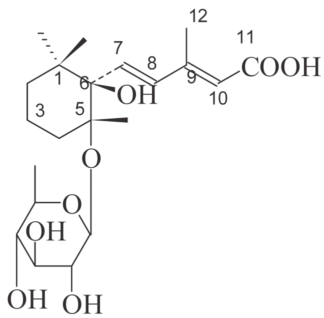
* A New Polyoxygenated Triterpene and Two New Aeginetic Acid Quinovosides from the Roots of *Remannia glutinosa* Libosch. [Scrophulariaceae]

** So Young Lee, Ju Sun Kim, Ran Joo Choi, Yeong Shik Kim, Je-hyun Lee, and Sam Sik Kang: *Chem. Pharm. Bull.* **59** (6) 742-746 (2011)

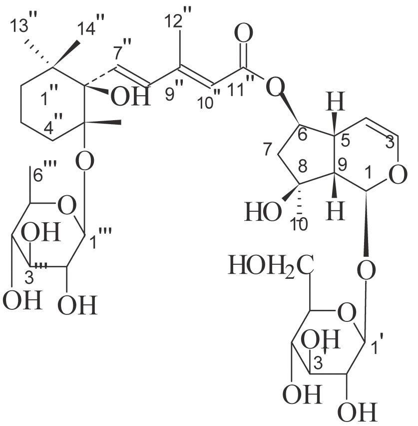


glutinolic acid (**1**)

* 3α,19α,20β,24,30–pentahydroxyurs-12-en-28-oic acid(=glutinolic acid)



aeginetic acid 5-*O*-β–D-quinovoside (**2**)

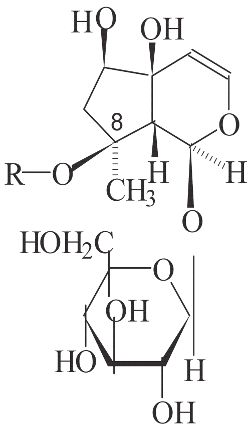


aeginetoyl ajugol 5''-*O*-β–D-quinovoside (**3**)

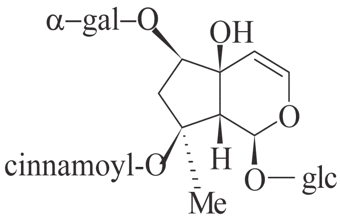
Fig. 1. Structures of compounds (**1**--**3**) from the Roots of *Rehmannia glutinosa* Libosch.

036. 玄參 Scrophulariae Radix

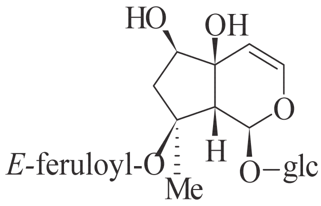
* *Scrophularia buergeriana* Miq.
S. *ningpoensis* Hemsl. [Scrophulariaceae]



harpagide R=H
harpagoside R=*trans*-cinnamoyl

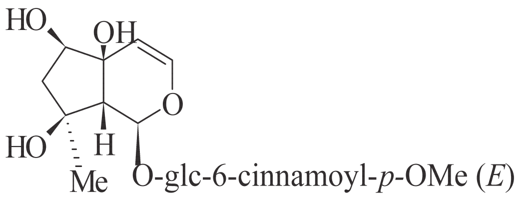


6-***O***-*α*-D-Galactopyranosyl harpagoside

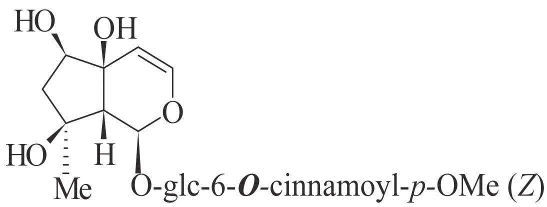


8-***O***-Feruloylharpagide

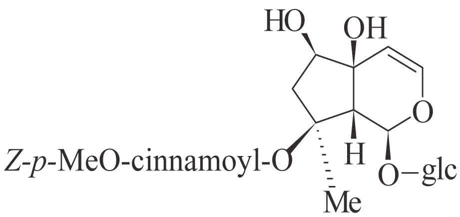
* *Scrophularia ningpoensis* (Scrophulariaceae)



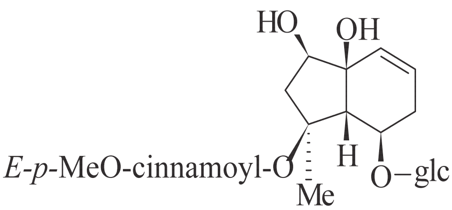
6'-***O***-*E*-*p*-Methoxycinnamoylharpagide



6'-***O***-*Z*-*p*-Methoxycinnamoylharpagide



8-***O***-*Z*-*p*-Methoxycinnamoylharpagide



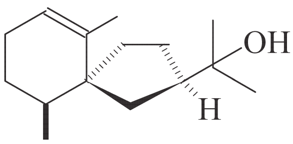
8-***O***-*E*-*p*-Methoxycinnamoylharpagide

* *Scrophularia buergeriana* (Scrophulariaceae)

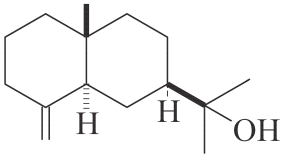
Fig. 1. Chemical structures of compounds

037-1. 蒼朮 Atractylodis Lanceae Rhizoma

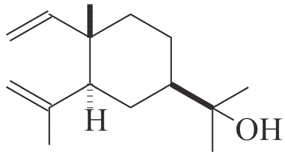
* *Atractylodes lancea* DC. [Compositae]



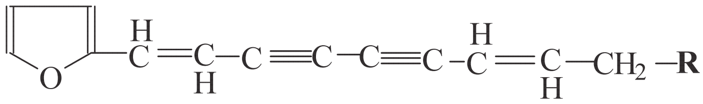
hinesol



β—eudesmol



elemol



atractylodin R ═H

atractylodinol R ═OH

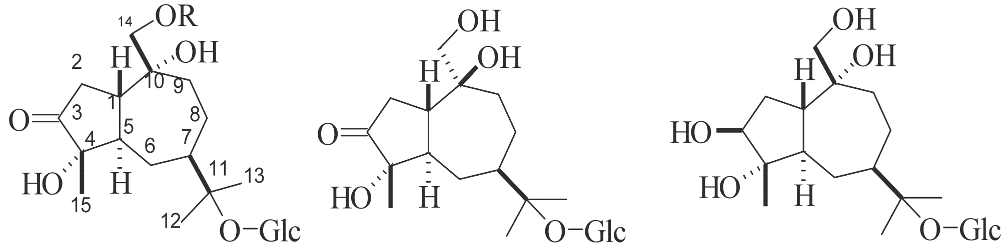
acetylatractylodinol R ═OAc

Fig. 1. Chemical structures of compounds

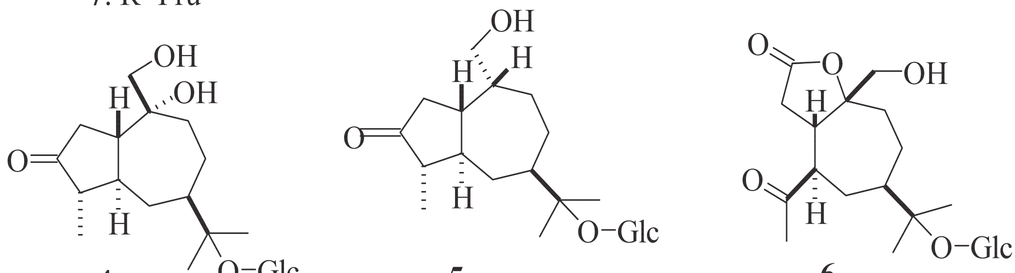
037-2-1. 蒼朮 Atractylodis Lanceae Rhizoma

* Kitajima J, Kamoshita A, Ishikawa T, Takano A Fukuda T, Isoda S, and Ida Y: *Chem. Pharm. Bull.* **51**(6), 673-678 (2003)

1). *Guaiane-type:*

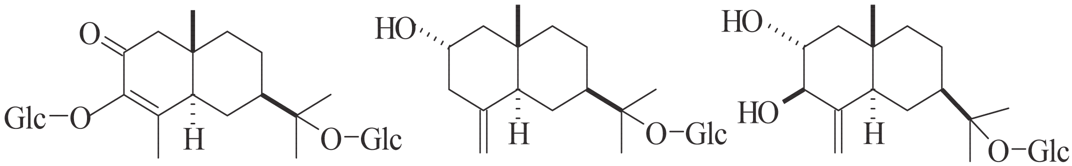


1: R=H
7: R=Fru
2
3



4
5
6

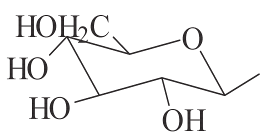
2). *Eudesmane-type:*

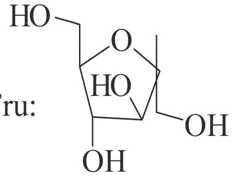


10

12: R=H
13: R=Glc
14: R=Glc$\overset{6\ 1}{-\!-}$Api

15: R=H
16: R=Glc

*Glc: 

Fru: 

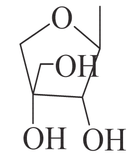
Api: 

Fig. 1. Chemical structures of compounds

037-2-2. 蒼朮 Atractylodis Lanceae Rhizoma

* Junichi Kitajima et al: *Chem. Pharm.Bull.* **51**(6), 673-678 (2003)

Sesquiterpenoid glycosides:(1--16)

Glycosides 1 to 6 were guaine-type sesquiterpenoid glucosides:

1) atractyloside A ; **2)** 10-*epi*-atractyloside A ; **3)** atracty;oside ;

4) (1*S*,4*S*,5*S*,7*R*,10*R*) -10,11,14-trihydroxyguai-3-one 11-***O***-β–D-glucopyranoside;

5) (1*S*,4*S*,5*R*,7*R*,10*R*)-11,14- dihydroxyguai-3-one 11-***O***-β–D-glucopyranoside ;

6) (1*S*,5*R*,7*R*,10*R*)-secoatractylolacrone 11-***O***-β–D-glucopyranoside.

7) atractyloside A 14-***O***-β–D-fructofuranoside;

8) (1*S*,4*S*,5*S*,7*R*,10*S*) -10,11,14-trihydroxyguai-3-one 11-***O***-β–D-glucopyranoside.

Glycosides 9 to 16 were eudesmane-type sesquiterpenoid glucosides:

9) (5*R*,7*R*,10*S*)-isopterocarpolone β–D-glucopyranoside {(5*R*,7*R*,10*S*)-11-hydroxyeudesm-3-en-2-one 11-***O***-β–glucopyranoside;

10) atractyloside I ; **11)** *cis*-atractyloside I ; **12)** atractyloside C ; **13)** atractyloside D ;

14) atractyloside E ; **15)** atractyloside G.

16) atractyloside G 2-***O***-β–D-glucopyrapyranoside {(2*R*,3*R*,5*R*,7*R*,10*S*)-eudesm-4(15)-ene-2,3,11-triol 2,11-di-***O***-β–D-glucopyranoside} with the 2*R*,3*R* configuration of the aglycone.

Monoterpenoid glucosides:(17-20), **Hemiterpenoid glycosides 21 and 22, Alkylglycoside 23, Aromatic compound glycosides 24 to 28, and Nucleosides 30 and 31** were identified as :

17) (1*R*,2*R*,4*S*)-2-hydroxy-1,8-cineole β–D-glucopyranoside,

18) (1*S*,2*S*,4*R*)-2-hydroxy-1,8-cineole β–D-glucopyranoside,

19) (4*S*)-*p*-menth-1-ene-7,8-diol 8-***O***-β–D- glucopyranoside,

20) (1*S*,2*R*,4*S*)-*p*-menthane-1,2,8-triol 8-***O***-β–D-glucopyranoside,

21) 3-methyl-3-butenyl- β–D-apiofuranosyl-(1--6)-β–D-glucopyranoside,

22) 3-methyl-2-butenyl-β–D-apiofuranosyl--(1--6)-β–D-glucopyranoside,

23) isopropyl β–D-apiofuranosyl-(1--6)-β–D-glucopyranoside,

24) 4-hydroxy-3-methoxyphenyl β–D-glucopyranoside,

25) 4-hydroxy-3-methoxyphenyl β–D-apiofuranosyl-(1--6)-β–D-glucopyranoside,

26) 4-hydroxy-3-methoxyphenyl β–D-xylopyranosyl-(1--6)-β–D-glucopyranoside,

27) icariside F_2,

28) syringin,

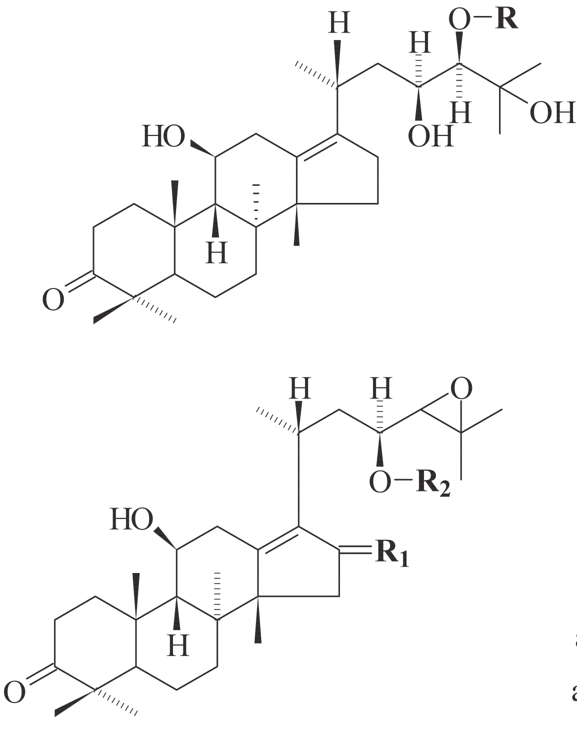
29) (2*E*,8*E*)-decadiene-4,6-diyne-1,10-diol 1-***O***-β–D-glucopyranoside

30) uridine ,

31) adenosine.

038-1. 澤瀉 Alismatis Rhizoma

* *Alisma orientale* Juzepczuk [Alismataceae]
(=*A. plantago-aquatica* L. var. *orientale* Samuelsson)



alisol A : R=H

alisol A monoacetate: R=Ac

	R_1	R_2
alisol B	H, H	H
alisol B monoacetate	H, H	Ac
alisol C	=O	H
alisol C monoacetate	=O	Ac

Fig. 1. Chemical structures of compounds

* Tadakazu Murata, Yoshio Imai, Takeo Hirata and Masuo Miyamoto: *Chem. Pharm. Bull.* **18** (7), 1347-1353 (1970);
Tadakazu Murata and Masuo Miyamoto: *Chem. Pharm. Bull.* **18** (7) ,1354-1361 (1970);
Kazuhide Kamiya,Tadakazu Murata and Masao Nishikawa: *Chem. Pharm. Bull.* **18** (7), 1362-1368 (1970);
Tadakazu Murata, Masakazu Shinohara and Masuo Miyamoto, *Chem. Pharm. Bull.***18** (7), 1369-1384 (1970).

038-2. 澤瀉 Alismatis Rhizoma

* SULFOORIENTALOLS a, b, c, AND d, FOUR NEW BIOLOGICALLY ACTIVE SESQUITERPENS, FROM ALISMATSIS RHIZOMA:
M. Yoshikawa, Y. Fukuda, S. Hatakeyama, N. Tanaka, H. Matsuda, J. Yamahara, and N. Murakami:
Chem. Pharm. Bull. **41**(6), 1194-1196 (1993)

** Sulfoorientalols inhibited the contraction of isolated bladder muscle induced by carbachol.

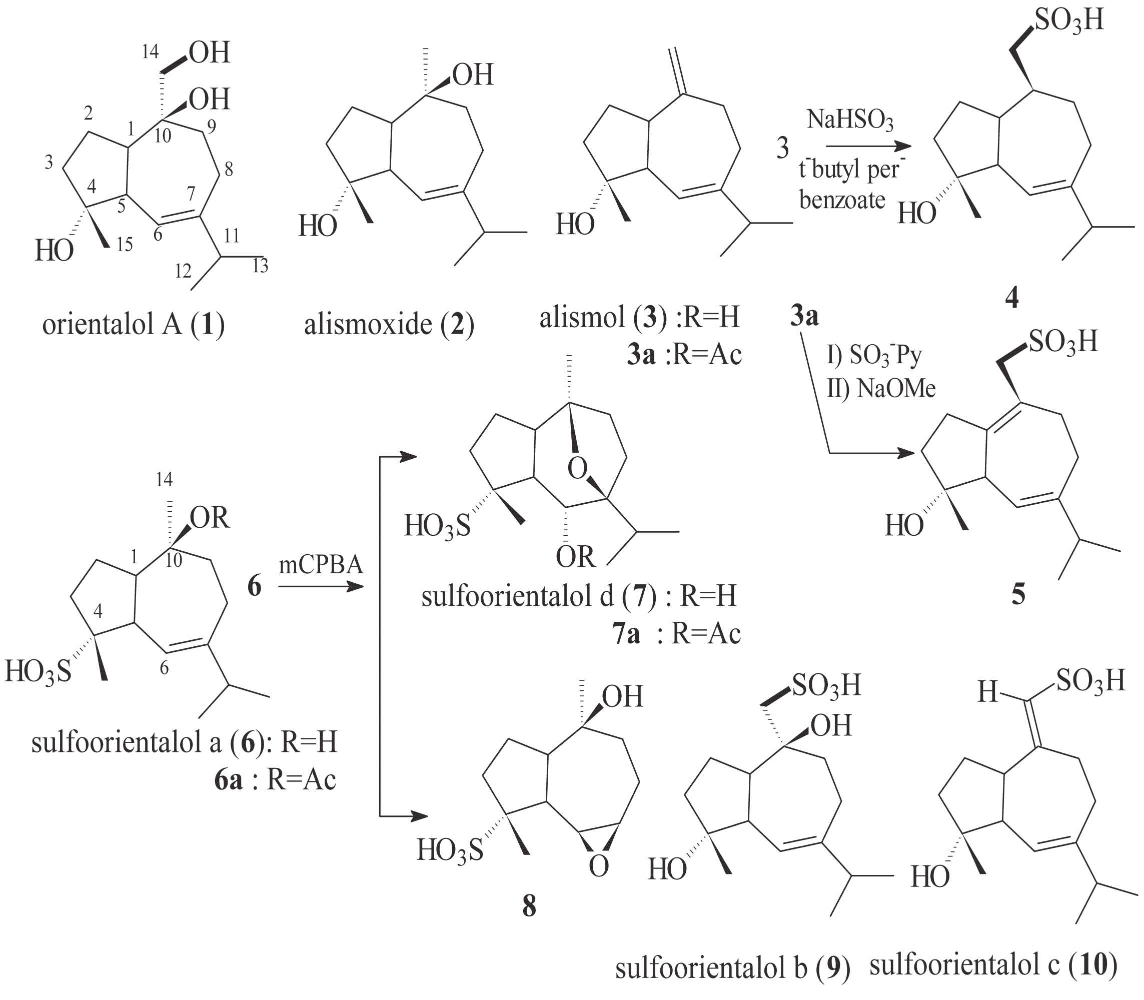
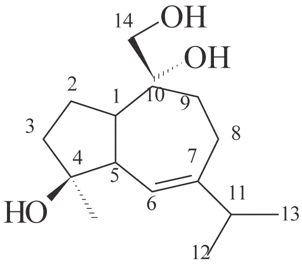


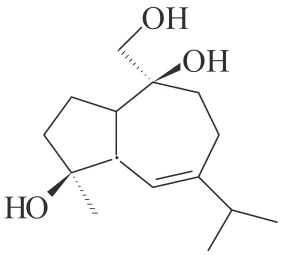
Fig. 1. Chemical structures of compounds **1--10**

038-3. 澤瀉 Alismatis Rhizoma

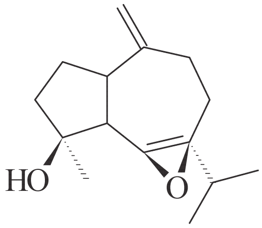
*Stereostructures of Bioactive Sesquiterpenes, Alismol, Alismoxide, Orientalols A, B, and C, from Chinese Alismatis Rhizoma:
M. Yoshikawa, S. Yamaguchi, H. Matsuda, Y. Kohda, H. Ishikawa, N. Tanaka, J Yamahara, and N. Murakami,
Chem. Pharm.Bull. **42** (9), 1813-1816 (1994)



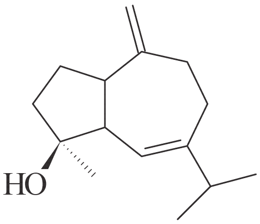
orientalol A



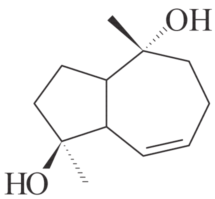
orientalol B



orientalol C



alismol



alismoxide

* All five Sesquiterpenes were found to show an inhibitory effect on the contraction of isolated bladder smooth muscle induced by carbachol.

** **alismol** $\xrightarrow{OsO_4}$ orientalol A + orientalol B

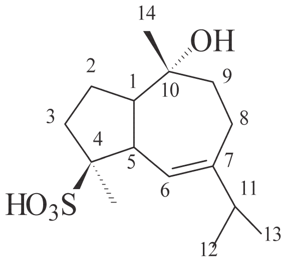
$\xrightarrow{H_2SO_4}$ alismoxide

$\xrightarrow{mCPBA}$ orientalol C

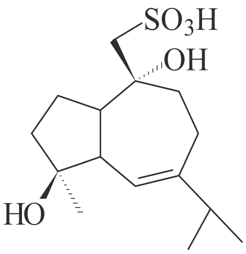
038-4 澤瀉 Alismatis Rhizoma

* Sterostructures of Water-Soluble Bioactive Sesquiterpenes, Sulfoorientalols a, b, c, and d, from Chinese Alismatis Rhizoma: M. Yoshikawa, S. Yamaguchi, H. Matsuda, N. Tanaka, J. Yamahara, and N. Murakami, *Chem. Pharm. Bull.* **42**(12), 2430-2435 (1994)

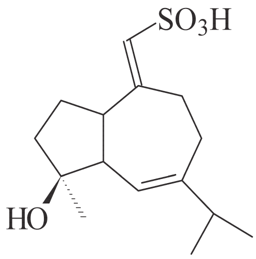
** Sulfoorientalols and the synthetic congeners were found to inhibit the carbachol-induced contraction of isolated bladder smooth muscle of guinea pig.



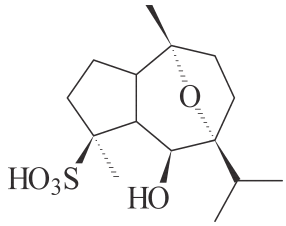
sulfoorientalol a



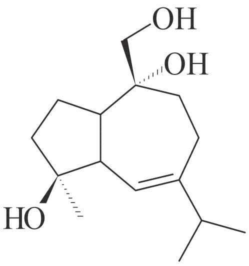
sulfoorientalol b



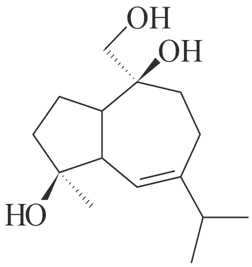
sulfoorientalol c



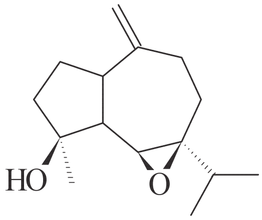
sulfoorientalol d



orientalol A



orientalol B



orientalol C

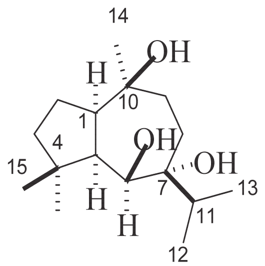
Fig. 1. Chemical structures of compounds

38-5-1. 澤瀉 Alismatis Rhizoma

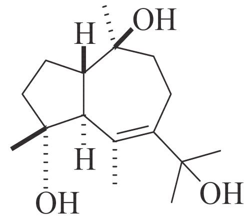
* *Alisma orientalis* (Sam.) Juzep. [Alismataceae]

** Zhi-Yong Jiang, Xue-Mei Zhang, Jun Zhou, Feng-Xue Zhang, Ji-Jun Chen, Yang Lu, Li Wu, and Qi-Tai Zheng: *Chem. Pharm. Bull.* **55** (6), 905-907 (2007)

*** Two New Sesquiterpenes



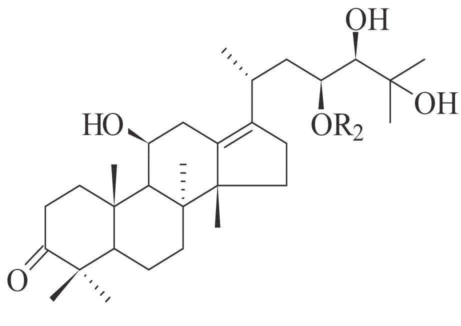
alismorientol A



alismorientol B

038-5-2. 澤瀉 Stability and Structure Studies on Alisol A 24-Acetate

* Bolat Makabel, Yuying Zhao, Bin Wang, Yanjing Bai, Qingying Zhang, Li Wu, and Yang Lv: *Chem. Pharm. Bull.* **56** (1), 41-45 (2008)



alisol A	R_1=H	R_2=H
alisol A 23-acetate	R_1=H	R_2=$COCH_3$
alisol A 24-acetate	R_1=$COCH_3$	R_2=H

Fig. 1. Structures of Alisol A, Alisol A 23-Acetate and Alisol A 24-Acetate from *Alisma orientalis* Juzep.

IV
・
呼吸器系疾患

039 ～ 050

IV-1

△：成分未表示

039. 杏仁 Armeniacae Semen

* *Prunus armeniaca* L.
P. *armeniaca* L. var. *ansu* Maxim. [Rosaceae]

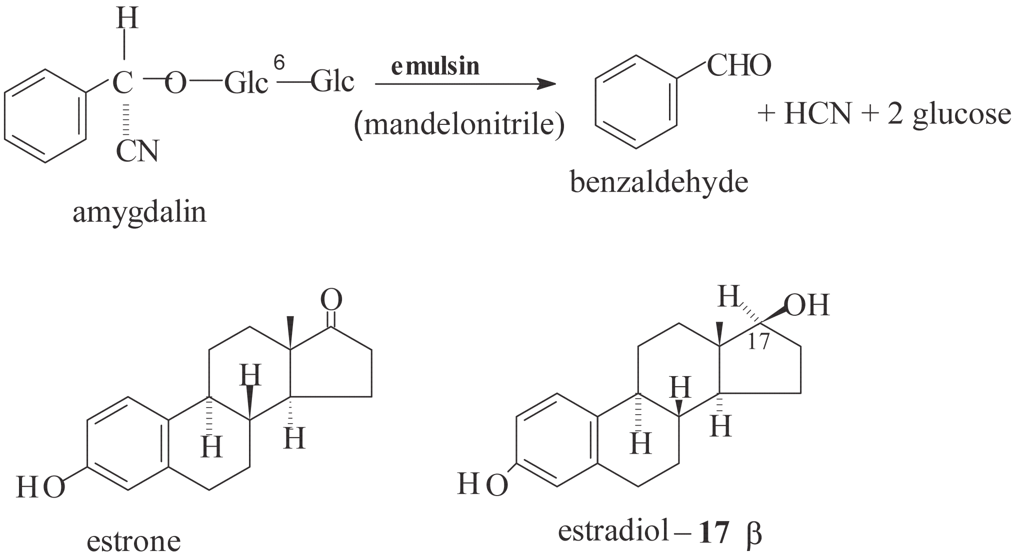
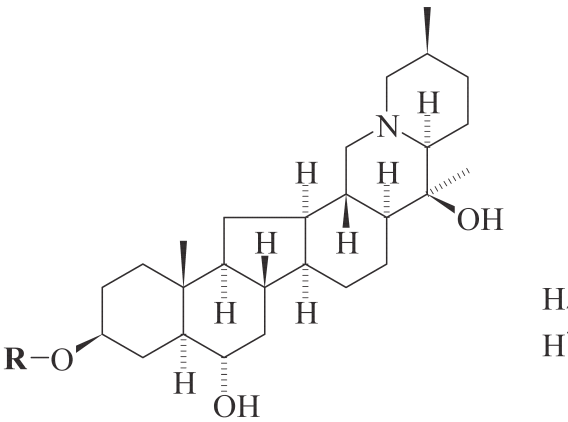


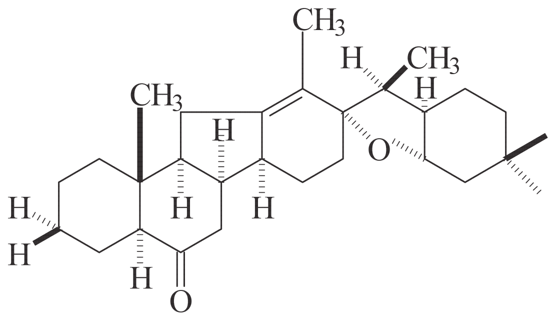
Fig. 1. Chemical structures of compounds

040-1 貝母 Fritillariae Bulbus

* *Fritillaria thunbergii* Miq. [Liliaceae]



peimine (=verticine): R=H
peiminoside (=peimine+D-glucose):R=glu



peimisine

Fig. 1. Chemical structures of compounds

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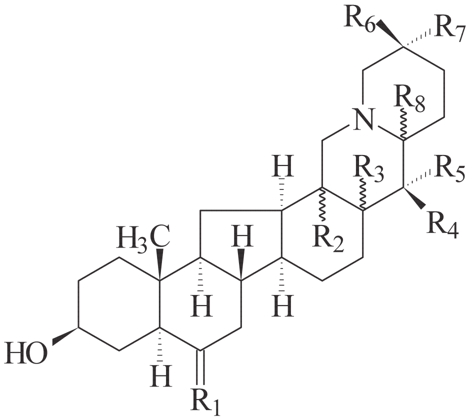
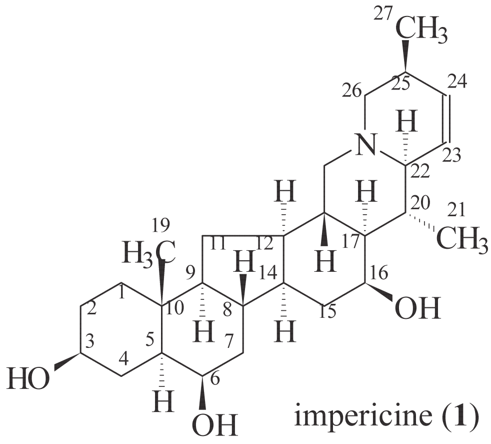
* peiminine, and zhebeinine(=5α−14α−cevanine-3β, 6α, 20β−triol)
[Zhang JX, Ma GE, Lao AN, Huang HZ et al:
Yao Xue Xue Bao. **26**, 231-233 (1991); **27**, 472-475 (1992)]

040-2-1. 貝母 *Fritillaria imperialis*

* Atta-ur-Rahman, et al: *Chem. Pharm. Bull.* **50**(8), 1013-1016 (2002)





impericine (**1**)

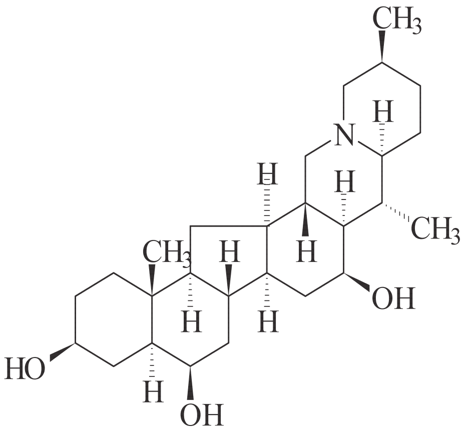
	R_1	R_2	R_3	R_4	R_5	R_6	R_7	R_8	
(**2**)	OH, H	β·H	α-H	CH_3	H	CH_3	H	α-H	forticine
(**3**)	OH, H	β·H	β-H	H	CH_3	CH_3	H	α-H	delavine
(**4**)	OH, H	α-H	β-H	H	CH_3	H	CH_3	α-H	persicanidine A
(**5**)	C=O	β-H	β-H	OH	CH_3	CH_3	H	α-H	imperialine
(**6**)	OH, H	β-H	α-H	H	CH_3	CH_3	H	α·H	ebeiedine
(**10**)	OH, H	β-H	β-H	CH_3	H	CH_3	H	β-H	tortifoline

Fig. 1. Chemical structures of compounds

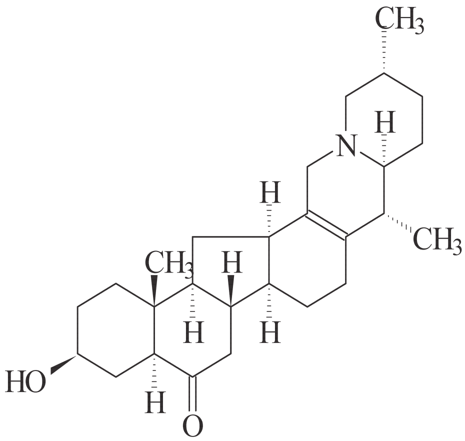
* (**1**) impericine [(20*R*, 22*S*, 25*S*)-5α–cevanine-23-ene-3β,6β,16β-triol]
(**2**) forticine [(20*S*, 22*S*, 25*S*)-5α–cevanine-3β,6β–diol]

040-2-2. 貝母 *Fritillaria imperialis*

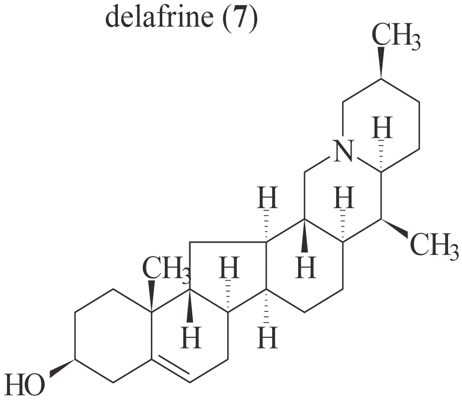
* Atta-ur-Rahman, et al : *Chem. Pharm. Bull.* **50** (8), 1013-1016 (2002)



delafrine (**7**)



ebeinone (**8**)



shinonomenine (**9**)

Fig. 1. Chemical structures of compounds **(7--9)**

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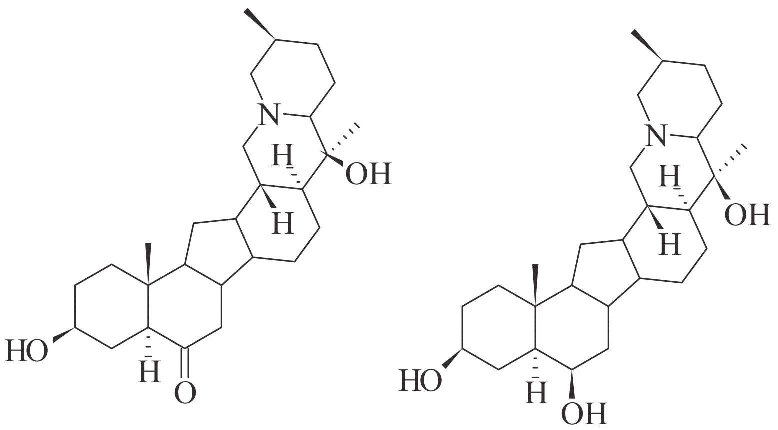
* Two new cevanine steroidal alkaloids, impericine (**1**) and forticine (**2**) along with known bases delavine (**3**), persicanidine A (**4**), and imperialine (**5**) were isolated from the bulbs of *Fritillaria imperialis.*

These steroidal bases showed anti-acetyl-cholinesterase and anti-butyrylcholinesterase inhibitiry activity.

040-3. 貝母 *Fritillaria ussuriensis* Maxim. [Liliaceae]

*H-O Pae, H. Oh, B-M Choi, G-S Oh, S-G Paik, S Jeong,
K-M Hwang, Y-G Yun and H-T Chung:

Biol. Pharm. Bull. **25**(11), 1409-1411 (2002)



verticinone isoverticine

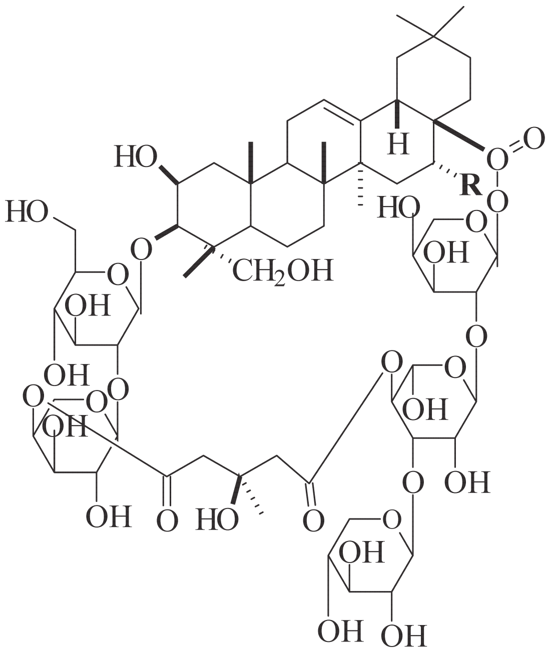
Fig. 1. Chemical structures of compounds

040-4. 土貝母 Constituents of Cucurbitaceous Plants

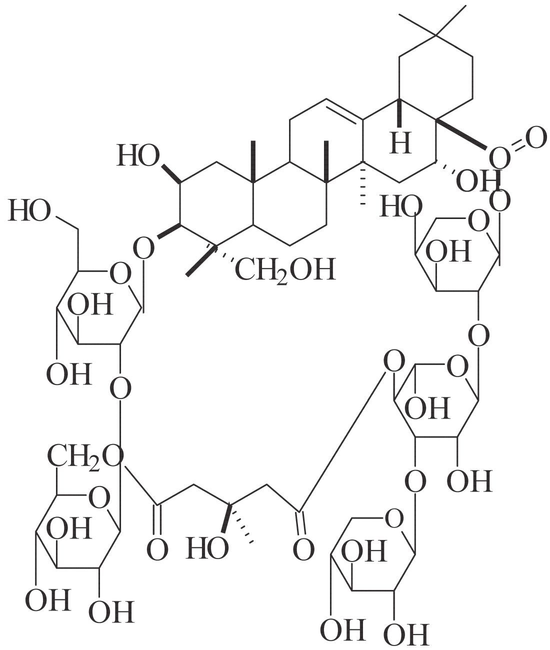
* Ryoji Kasai: *YAKUGAKU ZASSHI* **128** (10) 1369-1382 (2008)

" Tubeimo" *Bolbostemma paniculatum* (Maxim.) Franquet

** Oleanane type glycosides



(**1**) Tubeimoside I: R=H
(**2**) Tubeimoside II: R=OH



(**3**) Tubeimoside III

Fig. 1. Chemical structures of compounds (**1**--**3**)

041. 桃仁 Persicae Semen

* *Prunus persica* Batsch

P. *persica* Batsch var. *davidiana* Maximowicz [Rosaceae]

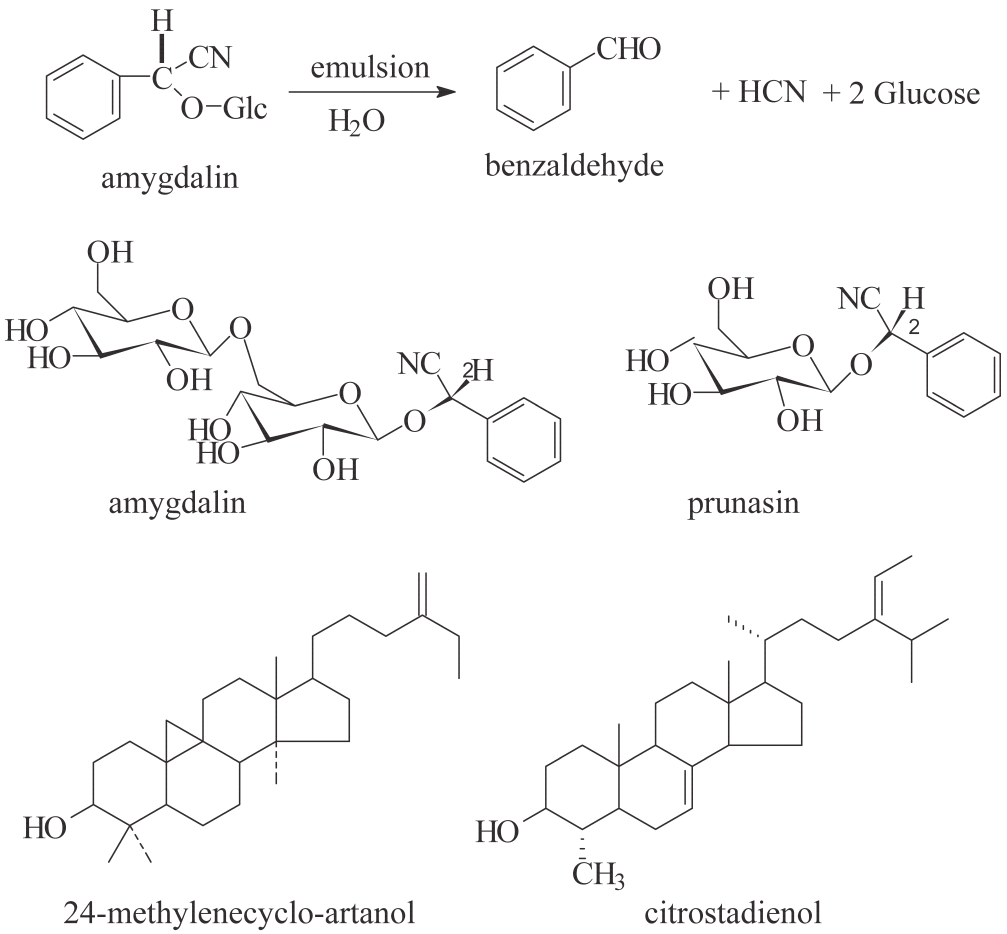


Fig. 1. Chemical structures of compounds

042-1-1. 前胡 Angelicae Decursivae Radix

* *Angelica decursiva* Franchet et Sav. [Umbelliferae]
(=*Peucedanum decursivum* Maxim.)

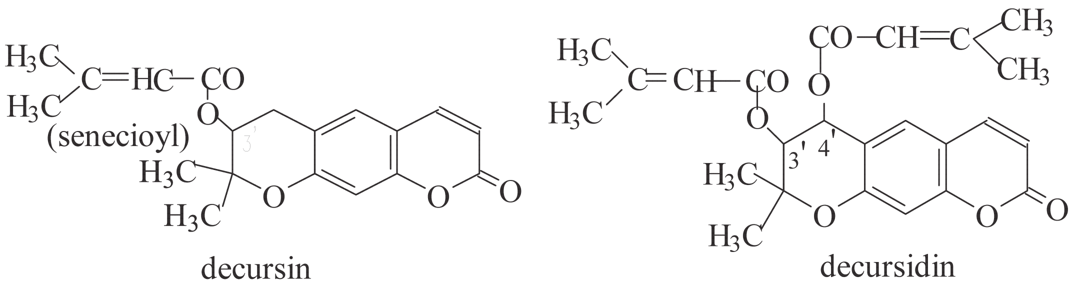


Fig. 1. Chemical structures of compounds from
Angelica decursiva (=*Peucedanum decursiva*)

042-1-2. 前胡 Peucedani Radix

** *Peucedanum praeruptorum* Dunn [Umbelliferae]

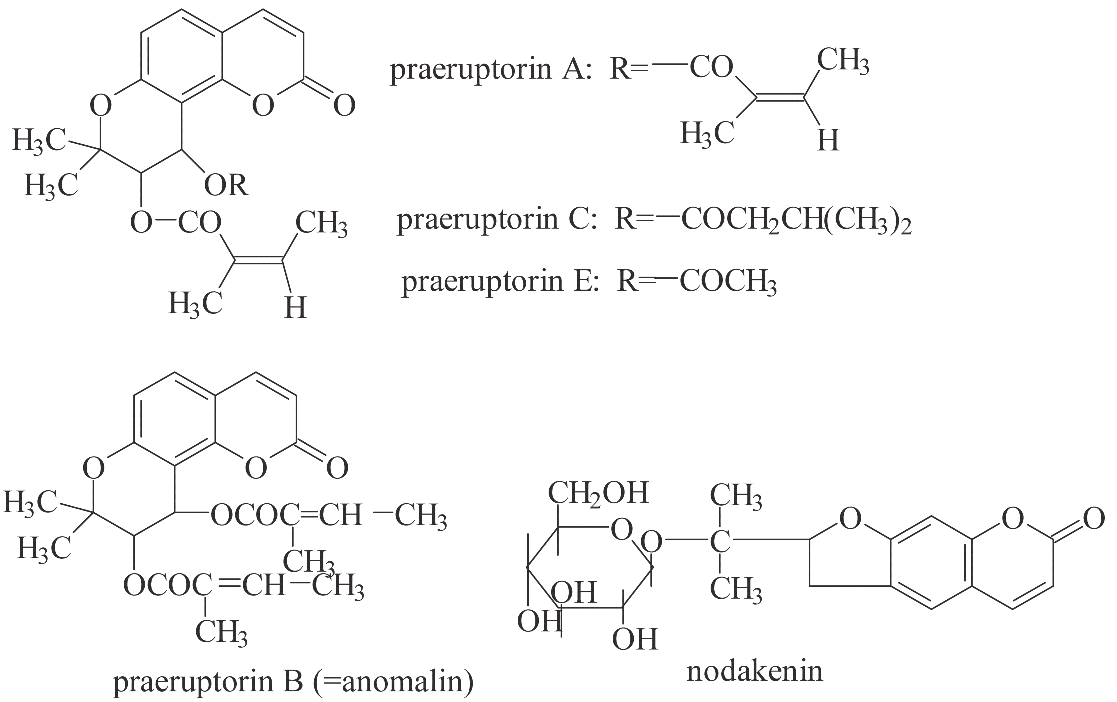


Fig. 1. Chemical structures of compounds

042-2-1. 台灣前胡 Peucedani Formosanae Radix

* *Peucedanum formosanum* Hayata [Umbelliferae]

** Yu-Chang Chen, Peng-Yin Chen, Chin-Chung Wu, Ian-Lih Tsai, and Ih-Sheng Chen :
Journal of Food and Drug Analysis, **16** (3), 15-25 (2008)

*** Seselin-type dihydropyranocoumarin, and Psoralen-type dihydropyranocoumarin

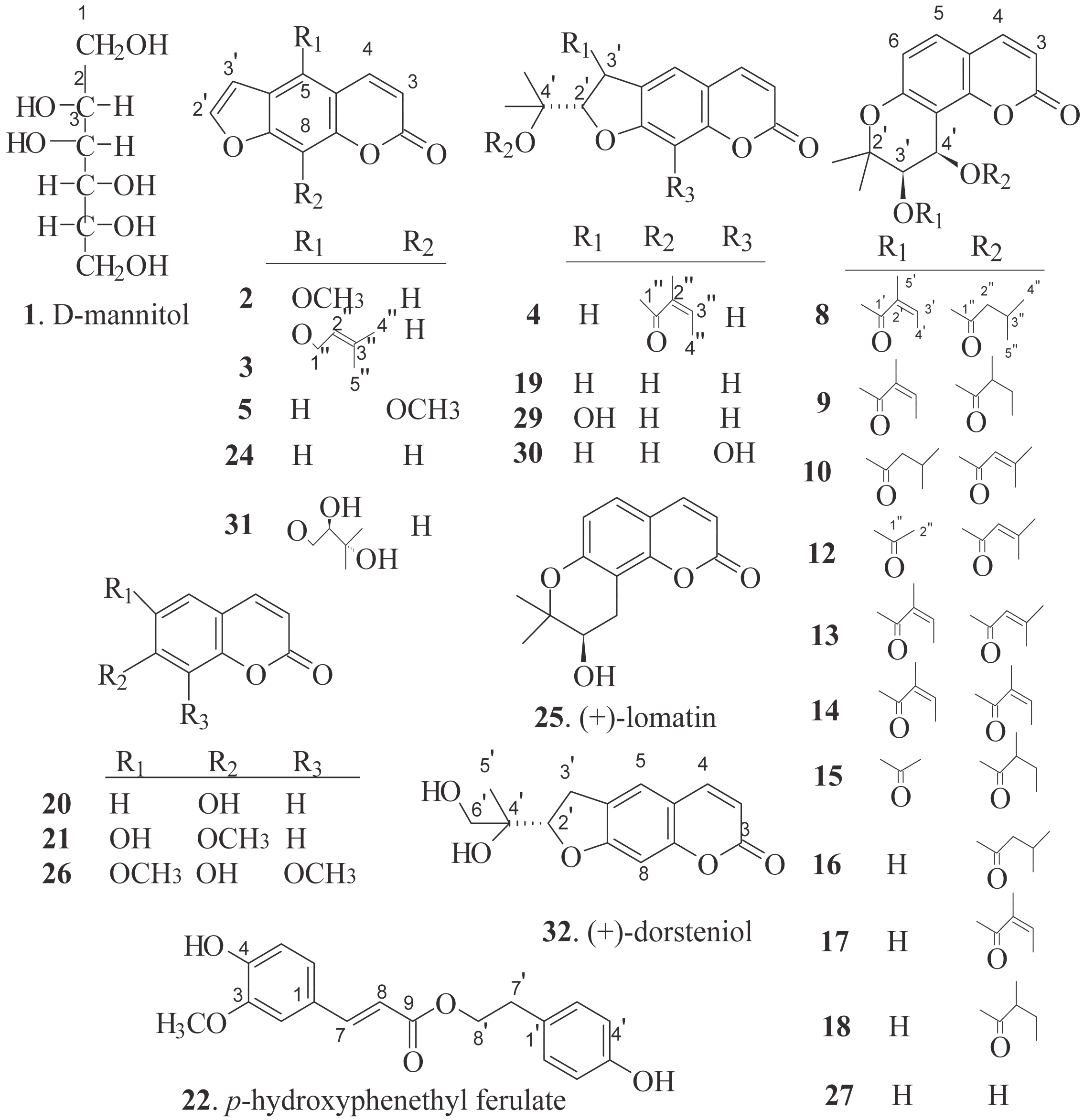


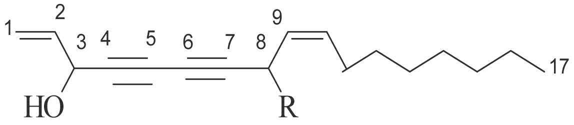
Figure 1-1. Structures of the root extract of *Peucedanum formosanum* (Taiwan Qian-Hu) led to the isolation of **32** known compounds

042-2-2. 台灣前胡 Peucedani Formosanae Radix

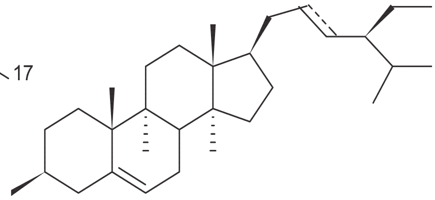
* *Peucedanum formosanum* Hayata [Umbelliferae]

** Yu-Chang Chen et al:
Journal of Food and Drug Analysis, **16** (3), 15-25 (2008)

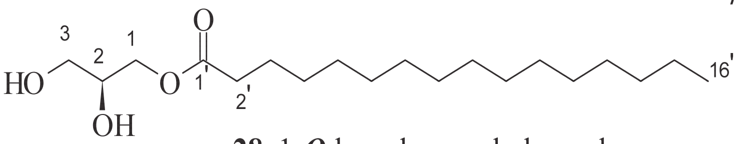
*** Continued 042-2-1



11. panaxynol R=H
23. falcarindiol R=OH



6. β–sitosterol
7. stigmasterol



28. 1-***O***-hexadecanoyl glycerol

Figure 1-2. Structures of the extract of *Peucedanum formosanum* (Taiwan Qian-Hu) led to the isolation of **32** known compounds

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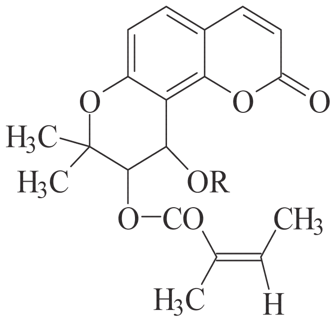
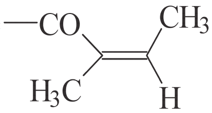
* **1**. D-mannitol, **2**. bergapten, **3**. isoimperatorin, **4**. (-)-deltoin, **5**. xanthotoxin, **6**. β–sitosterol, **7**. stigmasterol, **8**. (+)-praeptorin E, **9**. (+)-hyuganin A, **10**. (-)-*cis*-3'-isovaleryl-4'-senecioyl-khellactone, **11**. panaxynol, **12**. (-)-isosamidin, **13**. (+)-peuformosin, **14**. (+)-anomalin, **15**. (+)-*cis*-3'-acetoxy-4'-(2-methylbutyroyloxy)-3',4'-dihydroseselin, **16**. *cis*-3'-hydroxy-4'-isovaleryloxy-3',4'-dihydroseselin, **17**. laserpitin, **18**. (-)-*cis*-3'-hydroxy-4'-(2-methylbutyry loxy)-3',4'-dihydroseselin, **19**. (+)-marmesin, **20**. umbelliferone, **21**. isoscopoletin, **22**. *p*-hydroxyphenethyl ferulate, **23**. falcarindiol, **24**. psoralen, **25**. (+)-lomatin, **26**. isofraxidin, **27**. (-)-*cis*-khellactone , **28**. 1-***O***-hexadecanoyl glycerol, **29**. (+)-3'-hydroxy-marmesin, **30**. (+)-rutaretin, **31**. (+)-oxypeucedanin hydrate, and **32**. (+)-dorsteniol.

042-2-3-1. 白花前胡 Peucedani Radix

* *Peucedanum Praeruptorum* Dunn [Umbelliferae]

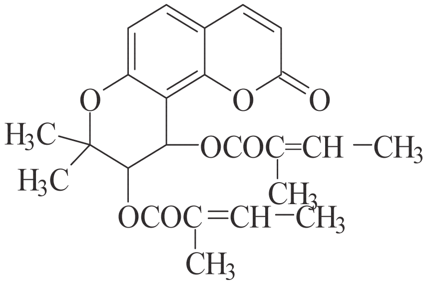


praeruptorin A: R=

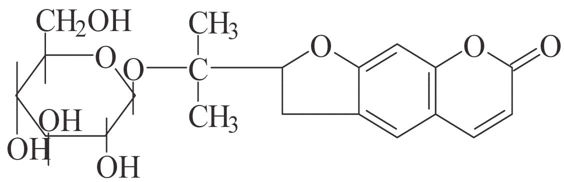


praeruptorin C: R=$-COCH_2CH(CH_3)_2$

praeruptorin E: R=$-COCH_3$



praeruptorin B (=anomalin)

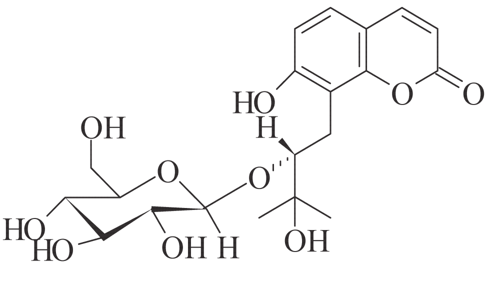


nodakenin

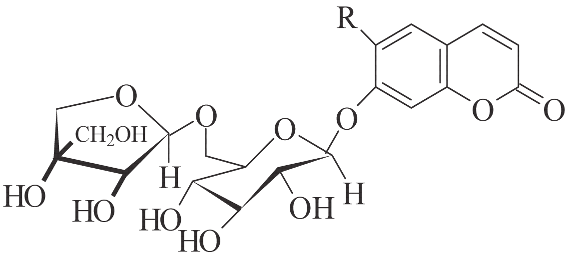
042-2-3-2. 白花前胡 Peucedani Radix

* *Peucedani praeruptorum* Dunn [Umbelliferae]

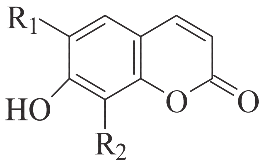
** Hirotaka Ishii, Yoshihito Okada, Masaki Baba, and Toru Okuyama: *Chem. Pharm. Bull.* **56**(9), 1349-1351 (2008)



1 praeroside VI



2 apiosylskimmin R=H
3 hymexelsin R=OCH_3



4 umbelliferone R_1=H, R_2=H
5 scopoletin R_1=OCH_3, R_2=H
6 isofraxidin R_1=OCH_3, R_2=OCH_3
7 8-carboxy-7-hydroxy coumarin R_1=H, R_2=COOH

042-3-1. 前胡 Qian-Hu

* Bai-Hua Qian-Hu (*Peucedanum praeruptorum*), Taiwan Qian-Hu (*P. formosanum*), and Zi-Hua Qian-Hu (*Angelica decursiva=P. decursivum*)

** Yu-Chang Chen, Peng-Yin Chen, Chin-Chung Wu, Ian-Lih Tsai and Ih-Sheng Chen: *Journal of Food and Drug Analysis,* **16** (3), 15-25 (2008)

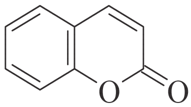
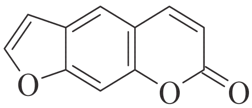
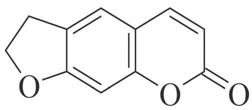
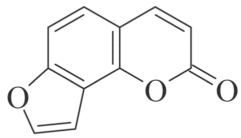
Compound	Bai-Hua Qian-Hu	Taiwan Qian-Hu	Zi-Hua Qian-Hu
			
1. Simple coumarin:			
isofraxidin	–	+	+
isoscopoletin	+	+	–
peucedanol	+	–	–
scopoletin	+	–	+
scopolin	+	–	–
umbelliferone	+	+	+
2. Furanocoumarin:			
			
Psoralen type			
bergapten	–	+	+
decuroside I	–	–	+
imperatorin	–	–	+
isoimperatorin	–	+	–
5,8-domethoxypsoralen	+	–	–
(+)-oxypeucedanin hydrate	+	–	–
psoralen	+	+	–
xanthotoxin	–	+	–
			
Dihydropsoralen type			
decuroside V	–	–	+
decuroside VI	–	–	+
decuroside VII	–	–	+
(-)-deltonin	–	+	–
(+)-dorsteniol	–	+	–

Table 1-1. The Constituents of Bai-Hua Qian-Hu, Taiwan Qian-Hu, and Zi-Hua Qian-Hu

042-3-2. 前胡 Qian-Hu

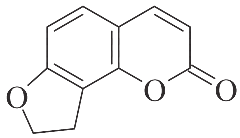
* Continued 042-3-1 and Table I-1

Compound	Bai-Hua Qian-Hu	Taiwan Qian-Hu	Zi-Hua Qian-Hu
1-***O***-hexadecanoyl glycerol	−	+	−
(+)-3'-hydroxymarmesin	−	+	−
isorutarin	+	−	−
(+)-marmesin	−	+	−
nodakenetin	−	−	+
nodakenin	+	−	+
puraeroside	+	−	−
(+)-rutaeretin	−	+	−
rutarin	+	−	−



Angelicin type

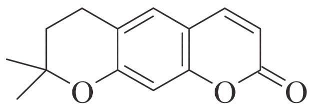
angelicin	+	−	−



Dihydroangelicin type

apterin	+	−	−
columbianadin	−	−	+

3. Pyranocoumarin



Dihydroxanthyletin type

3'(S)-acetoxy-4'(R)-isovaleryloxy-3',4'-dihydroxanthyletin	−	−	+
3'(S)-acetoxy-4'(R)-angeloxy-3',4'-dihydroxanthyletin	−	−	+
AD-I [3'(S)-angeloyloxy-4'(R,S)-isovaleryloxy-3',4'-dihydroxanthyletin]	−	−	+

Table-I-2. The Constituents of Bai-Hua Qian-Hu, Taiwan Qian-Hu, and Zi-Hua Qian-Hu

042-3-3. 前胡 Qian-Hu

* Continued 042-3-2 and Table I-2

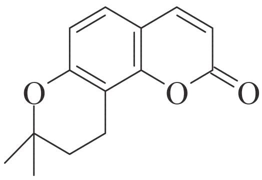
Compound	Bai-Hua Qian-Hu	Taiwan Qian-Hu	Zi-Hua Qian-Hu
andelin [AD-II, 3'(*S*)-angeloyloxy-4'(*R*)-senecioyloxy-3',4'-dihydroxanthyletin]	–	–	+
decursidin	–	–	+
decursin	–	–	+
decursinol	+	–	+
decursitin B	–	–	+
decursitin C	–	–	+
decursitin D	–	–	+
decursitin F	–	–	+
Pd-C-I [3'(*S*)-senecioyloxy-4'(*R*)-hydroxy-3',4'-dihydroxanthyletin]	+	–	+
Pd-C-II [3'(*S*)-hydroxy-4'(*R*)-sewnecioyloxy-3',4'-dihydroxanthyletin]	–	–	+
Pd-C-III [3'(*S*)-angelouloxy-4'(*R*)-acetoxy-3',4'-dihydroxanthyletin]	–	–	+
quainhucoumarin F	+	–	–
			
Dihydroseselin type			
(+)-*cis*-3'-acetoxy-4'-(2-methylbutyroyloxy)-3',4'-dihydroseselin	–	+	–
(-)-anomalin	+	+	–
cis-3',4'-disenecioyl-3',4'-dihydroseselin	+	–	–
cis-3'-hydroxy-4'-isovaleryloxy-3',4'-dihydroseselin	–	+	–

Table I-3. The Constituents of Bai-Hua Qian-Hu, Taiwan Qian-Hu, and Zi-Hua Qian-Hu

042-3-4. 前胡 Qian-Hu

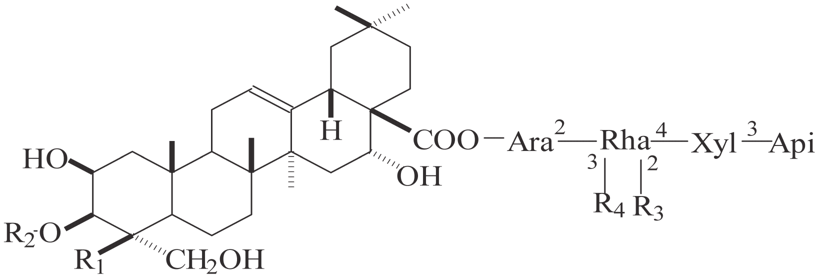
* Continued 042-3-3 and Table I-3

Compound	Bai-Hua Qian-Hu	Taiwan Qian-Hu	Zi-Hua Qian-Hu
(-)-*cis*-3'-hydroxy-4'-(2-methyl-butyryloxy)-3',4'-dihydroseselin	–	+	–
(+)-hyuganin A	–	+	–
(-)-isosamidin	–	+	–
(-)-*cis*-3'-isovaleryl-4'-senecioyl-khellactone	–	+	–
(-)-*cis*-khellactone	–	+	–
trans-khellactone	+	–	–
laserpitin	–	+	–
(+)-lomatin	–	+	–
peucedanocoumarin I	+	–	–
peucedanocoumarin II	+	–	–
peucedanocoumarin III	+	–	–
(+)-peuformosin	–	+	–
praeroside II	+	–	–
praeroside III	+	–	–
praeroside IV	+	–	–
praeroside V	+	–	–
praeruptorin A	+	–	–
(+)-praeruptorin E	+	+	–
qainhucoumarin A	+	–	–
qainhucoumarin B	+	–	–
qainhucoumarin C	+	–	–
qainhucoumarin D	+	–	–
qainhucoumarin E	+	–	–
qainhucoumarin H	+	–	–
samidin	+	–	–

Table I-4. The Constituents of Bai-Hua Qian-Hu, Taiwan Qian-Hu, and Zi-Hua Qian-Hu

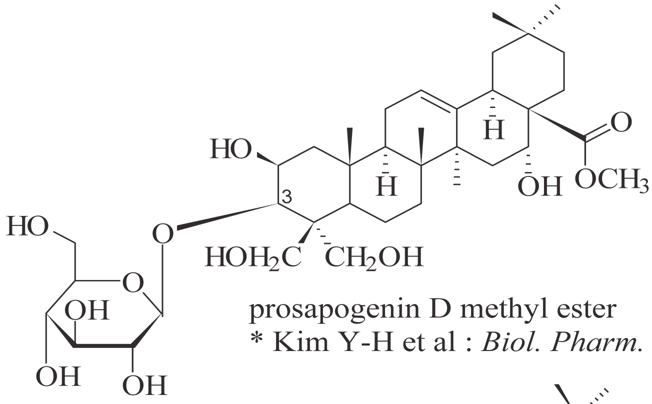
043-1. 桔梗 Platycodi Radix

* *Platycodon grandiflorum* A. De Candolle [Campanulaceae]



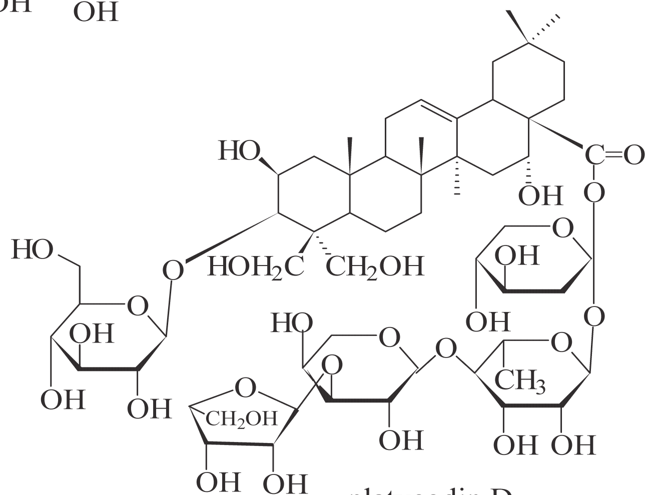
	R_1	R_2	R_3	R_4
platycodin A	CH2OH	Glc	Ac	H
platycodin C	CH_2OH	Glc	H	H
platycodin D	CH_2OH	Glc	H	H
platycodin D_2	CH_2OH	Glc $\xrightarrow{3}$ Glc	H	H
polygalacin D	CH_3	Glc	H	H
polygalacin D_2	CH_3	Glc $\xrightarrow{3}$ Glc	H	H

* Platycodin D ⟶ Prosapogenin D ⟶ Prosapogenin D methyl ester



prosapogenin D methyl ester

* Kim Y-H et al : *Biol. Pharm. Bull.* **31,** 2114 (2008)



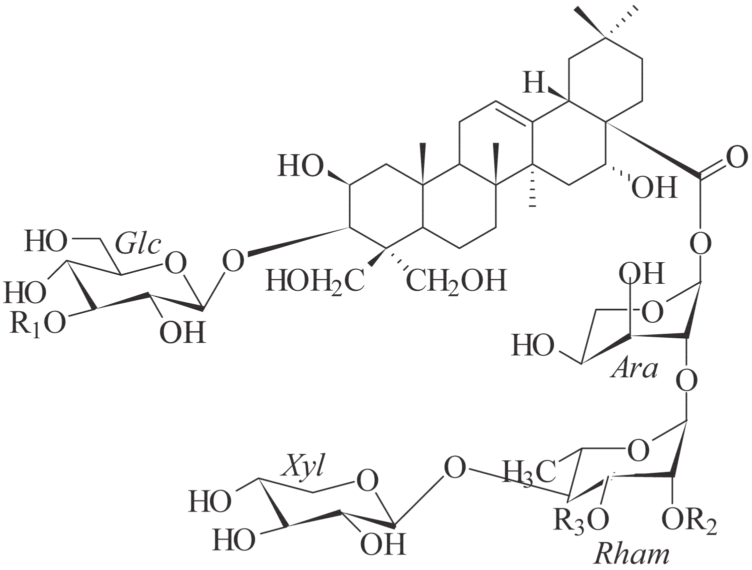
platycodin D

* Jintao Wu et al: *Biol. Pharm. Bull.* **35** (8) 1216-1221 (2012)

043–2–1. 桔梗 Platycodi Radix

* *Platycodon grandiflorum* A. DC. [Campanulaceae]

** T. Nikaido, K. Koike, K. Mitsunaga, T. Saeki:
Natural Medicines, **52** (1), 54-59 (1998)



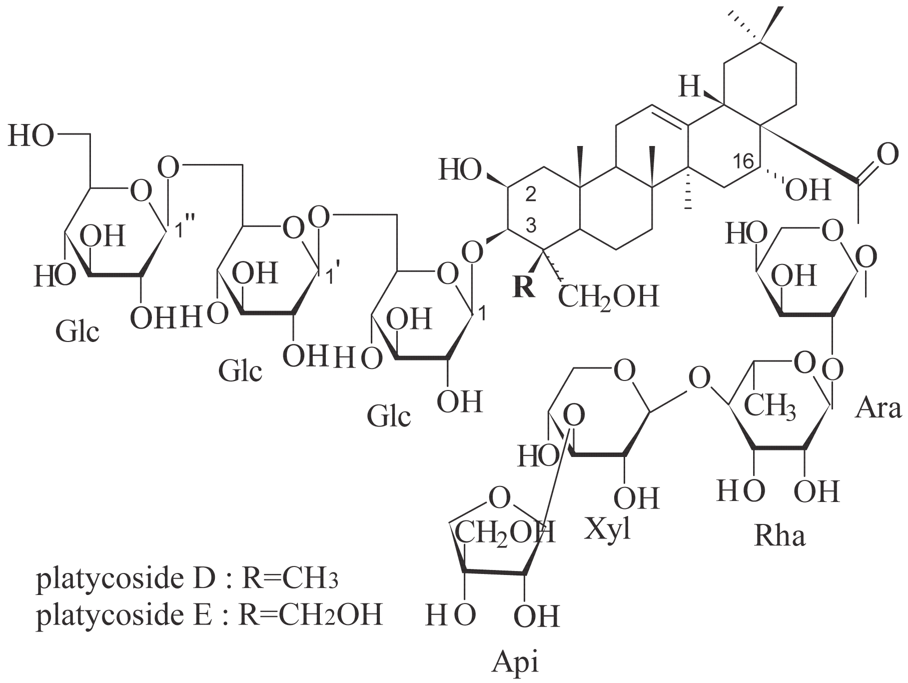
	R_1	R_2	R_3
platycoside A :	Glc	H	H
platycoside B :	H	Ac	H
platycoside C :	H	H	Ac

Fig. 1. Chemical structures of compounds platycosides

043-2-2. 桔梗 Platycodi Radix

* *Platycodon grandiflorum* A. DC. [Campanulaceae]

** T. Nikaido, K. Koike, K. Mitsunaga, T. Saeki :
Chem. Pharm. Bull. **47** (6), 903-904 (1999)



platycoside D : R=CH3
platycoside E : R=CH2OH

043-2-3. 桔梗 Platycodi Radix

* *Platycodon grandiflorum* A. DC. [Campanulaceae]

** K. Mitsunaga, K. Koike, M. Koshikawa, H. Takeuchi, T. Saeki , T. Nikaido: *Natural Medicines,* **54** (3), 148-150 (2000)

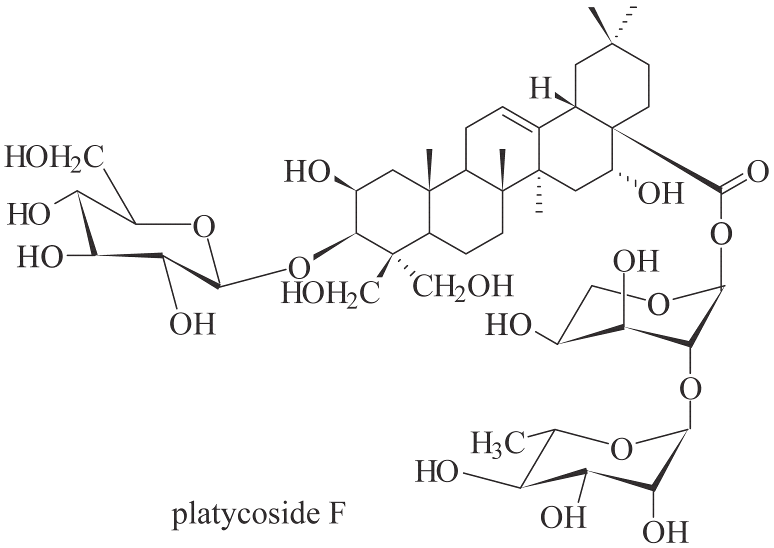


Fig. 1. Chemical structures of compound platycoside F

043-3-1. 桔梗 Platycodi Radix

* *Platycodon grandiflorum* A. DC. [Campanulaceae]

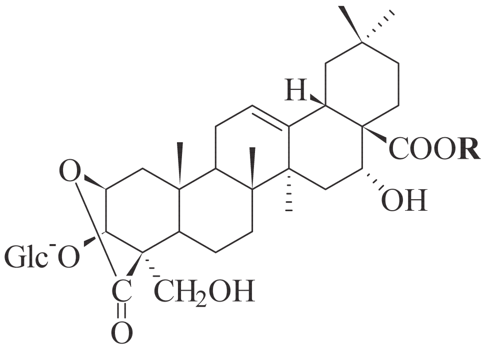
** Wen-Wei Fu, Noriko Shimizu, Tadahiro Takeda, De-Qiang Dou, Baohui Chen, Yue-Hu Pei, and Ying-Jie Chen: *Chem. Pharm. Bull.* **54** (9), 1285-1287 (2006)

*** New A-Ring Lactone Triterpenoid Saponin:

1. platycoside M-1: [3-***O***-β–D-glucopyranosyl platycogenic acid A lactone]

2. platycoside M-2: [3-***O***-β–D-glucopytranosyl platycogenic acid A lactone-28-***O***-α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranoside]

3. platycoside M-3: [3-***O***-β–D-glucopyranosyl platycogenic acid A lactone-28-***O***-β–D-xylopyranosyl-(1-4)-α–L-rhamnopyranosyl-(1-2)--α–L-arabinopyranoside]



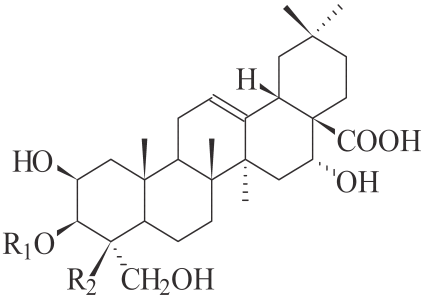
R
1.—H
2.—Ara2-1Rha
3. —Ara2-1Rha 4-1Xyl

Fig. 1. Chemical structures of compounds **1**--**3**

043-3-2. 桔梗 Platycodi Radix

* Studies on the chemical constituents from the roots of *Platycodon grandiflorum* A. DC. [Campanulaceae]

** Wen-Wei Fu, De-Qiang Dou, Noriko Sahimizu, Tadahiro Takeda, Yue-Hu Pei, Ying-Jie Chen: *J Nat Med,* **60** (1), 68-72 (2006)



	R_1	R_2
1	Glc1--6Glc1--6Glc-	CH_2OH
2	Glc-	CH_2OH
3	Glc-	CH_3
4	Glc1--3Glc-	CH_3
5	$CH_3(CH_2)nCOOH$	n=22,24,26
6	CH_2O-CO$(CH_2)_{14}CH_3$ / CHOH / CH_2OH	

Fig. 1. Chemical structures of compounds **1--6**

* Three known monodesmosidic saponins:
3-***O***-β–D-glucopyranosyl-2β,3β,16α,23,24-pentahydroxyolean-12-ene-28-oic acid,
3-***O***-β–D-glucopyranosyl polygalacic acid,
3-***O***-β–D-glucopyranosyl-(1-3)-β–D-glucopyranosyl polygalacic acid.

Two known non-saponin compounds, a mixed compound of *n*-tetracosanoic acid (lignoceric acid), *n*-hexcosanoic acid (cerotic acid), and *n*-octacosanoic acid, and α–monopalmitin; were isolated for the first time from the root of *Platycodon grandiflorum* together with another seven known compounds:

platycoside G_1 (3-***O***-β-D-glucopyranosyl-(1-6)-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl-2β,3β,16α,23,24-pentahydroxyolean-12-ene-28-oic acid 28-O-β–D-xylopyranosyl-(1-4)-α–L-rhamnopyranosyl-(1-2)-α–Liarabinopyranoside).

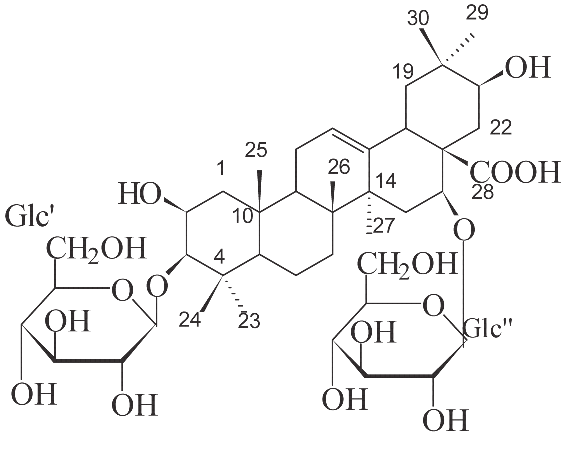
deapio-platycodinD, Polygalacin D, deapio-platycodinD3, platycoside A, α–spinasterol, and α–spinasteryl-3-O-β–D-glucopyranoside.

** 1.New prosapogenin
2. 3-***O***-β–D-glucopyranosyl-2β,3β,16α,23,24-pentahydroxyolean-12-ene-28-oic acid,
3. 3-***O***-β–D-glucopyranosyl polygalacic acid,
4. 3-***O***-β–D-glucopyranosyl-(1-3)-β–D-glucopyranosyl polygalacic acid,
5. a mixed Cpd. of lignoceric acid,cerotic acid, and *n*-octacosanoic acid
6. α–monopalmitin

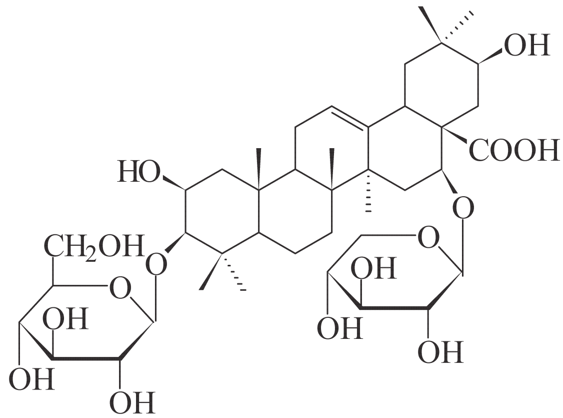
043-4. 桔梗 Platycodi Radix

* Two New Triterpenoid Saponins from the Root of *Platycodon grandiflorum*

** Guoxu Ma, Wenjie Guo, Lizi Zhao, Qingxia Zheng, Zhaocui Sun, Jianhe Wei, Junshan Yang, and Xudong Xu: *Chem. Pharm. Bull.* **61** (1) 101-104 (2013)



1 platycodon A



2 platycodon B

Fig. 1. Structures of platycodon A and B

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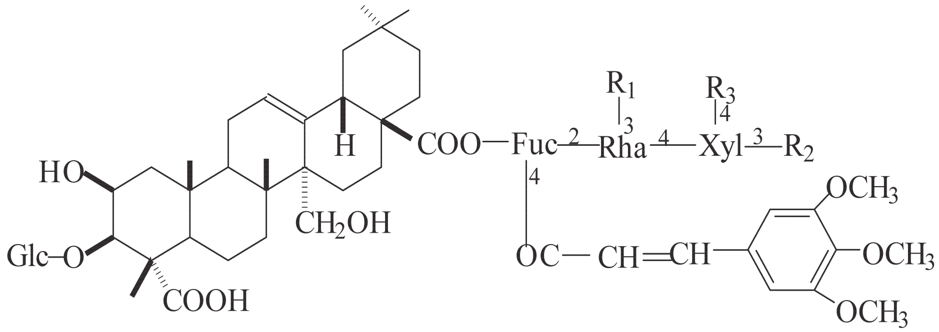
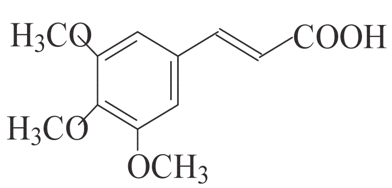
* Two new triterpenois saponins, named platycodon A (**1**) and Platycodon B (**2**) were isolated frrom the roots of *Platycodon grandiflorum.*

044-1. 遠志 Polygalae Radix

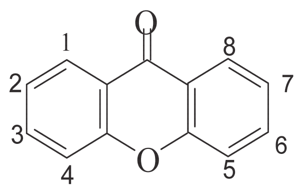
* *Polygala tenuifolia* Willdenow [Polygalaceae]



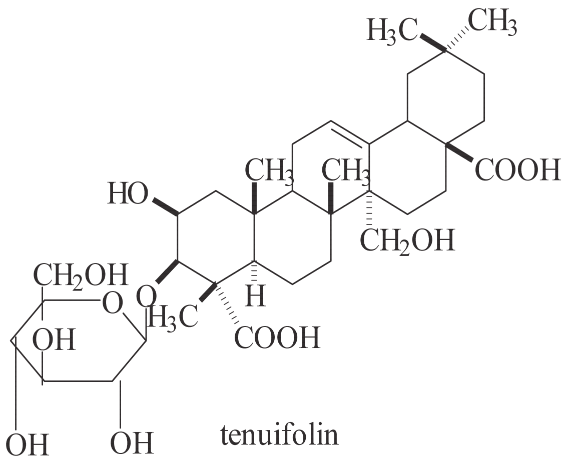
	R_1	R_2	R_3
onjisaponin E :	H	H	Gal
onjisaponin F :	Api	Api	H
onjisaponin G :	Api	H	H



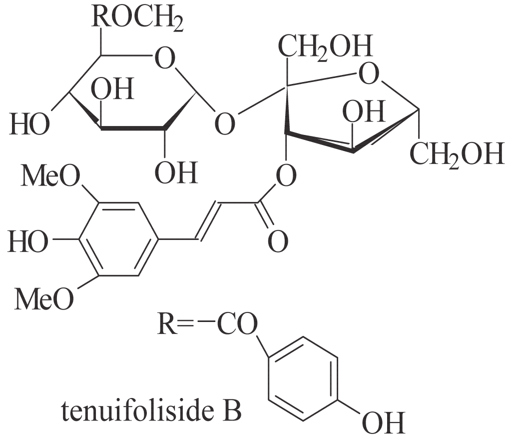
3, 4, 5-trimethoxycinnamic acid



xanthone



tenuifolin



tenuifoliside B

Fig. 1. Chemical structures of compounds

044-2-1. 遠志 Polygalae Radix

* Norepinephrine Transpoter Inhibitors from *Polygala tenuifolia*

** Yun-Lian Lin, Wan-Ping Chen, Han-Chieh Ko, Feng-Nien Ko, and Tian-Shung Wu: *Journal of Food and Drug Analysis,* **16** (3), 26-30 (2008)

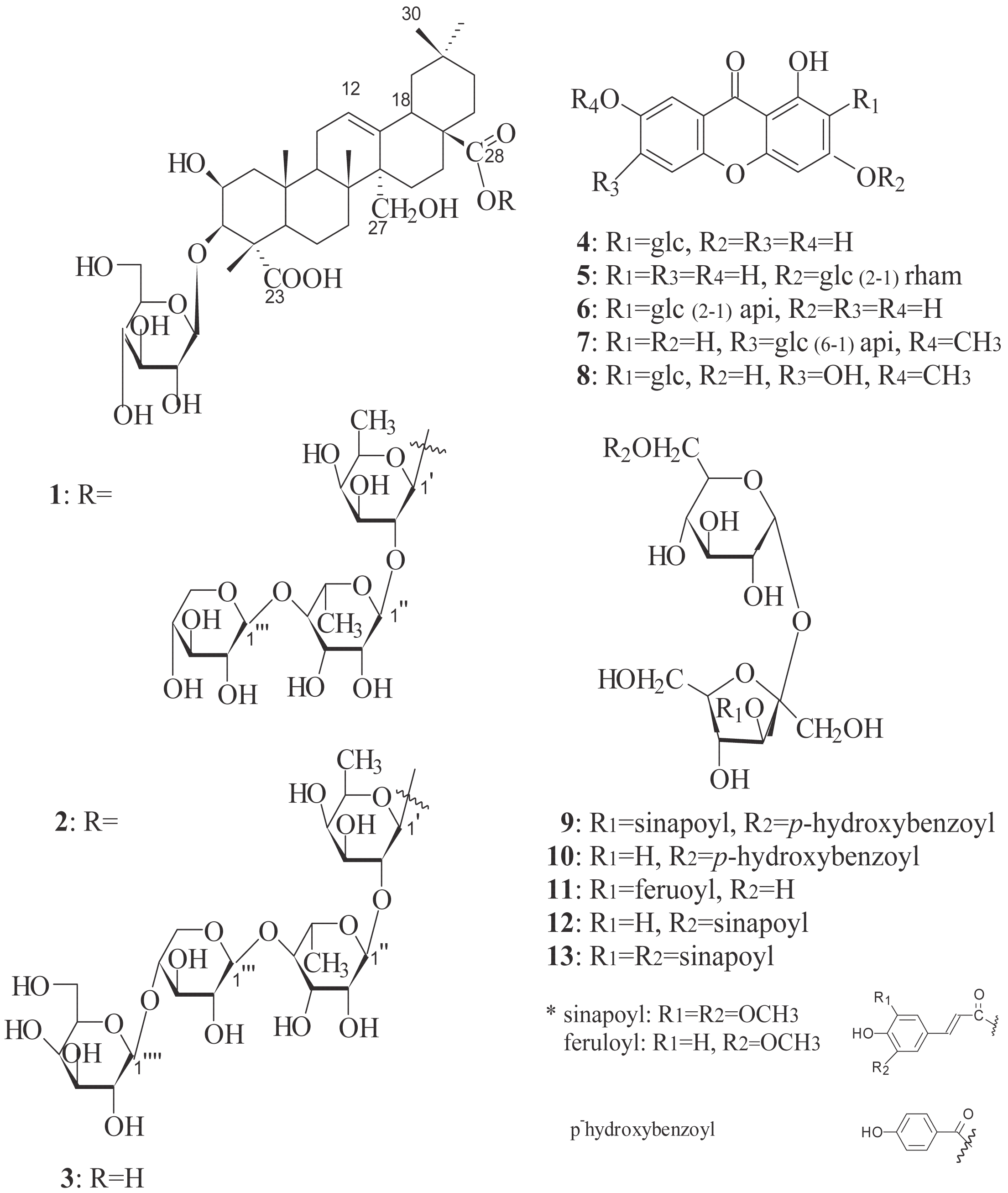


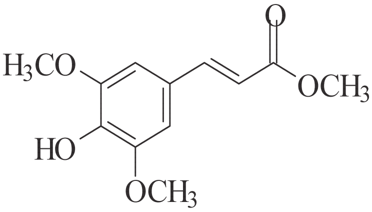
Figure 1-1. The structures of the compounds isolated from the active fraction of an aqueous extract of the roots of *Polygala tenuifolia*

044-2-2. 遠志 Polygalae Radix

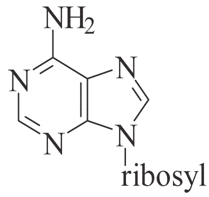
* Norepinephrine Transporter Inhibitors from *Polygala tenuifolia*

** Yun-Lian Lin et al: *Journal of Food and Drug Analysis,* **16** (3), 26-30(2008)

*** Continued 044-2-1



14



15

Figure 1-2. The structures of the compounds isolated from the active fraction of an aqueous extract of the roots of *Polygala tenuifolia*

---

* ***Two Saponins:***

(**1**) polygalasaponin XXVIII,

(**2**) 3-***O***-β–D-glucopyranosyl presenegenin 28-[***O***-β–D-galactopyranosyl(1-4)-β–D-xylopyranosyl-(1-4)-α–L-rhamnopyranosyl(1-2)-β–D-fucopyranosyl]ester.

Five xanthone glycosides:

(**4**) neolancerin, (**5**) polygalaxanthone IX, (**6**) sibiricaxanthone B, (**7**) polygalaxanthone III, (**8**) 7-***O***-methylmangiferin.

Five phenolic glycosides:

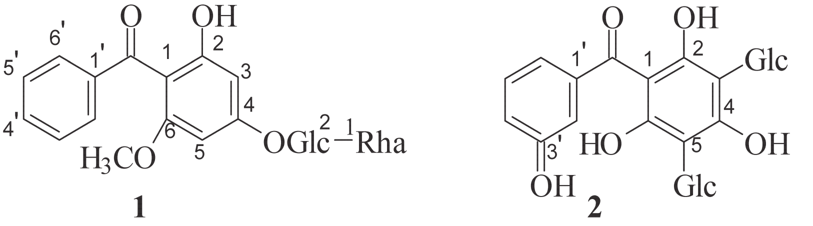
(**9**) tenuifolisaide A, (**10**) sibiricose A_3, (**11**) sibiricose A_5, (**12**) sibiricoses A_6, (**13**) 3',6-disinapyol sucrose.

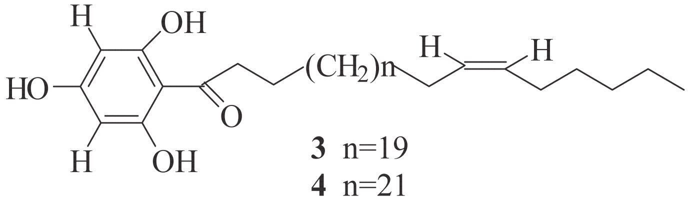
A triterpenoid: (**3**) tenuifolin.

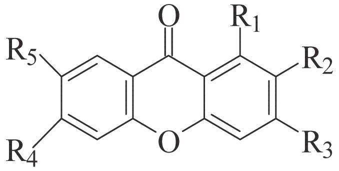
Two Others: (**14**) methyl sinapoate, and (**15**) adenosine.

044-3. 遠志皮 Four New Phenones from the Cortexes of *Polygala tenuifolia* Willdenow [Polygalaceae]

* Yong Jiang, and Penfei Tu: *Chem. Pharm. Bull.* **53**(9), 1164-1166 (2005)







5 $R_1=R_2=R_3=R_5=OCH_3$, $R_4=OH$
6 $R_1=R_5=OCH_3$, $R_2=R_3=R_4=H$
7 $R_1=R_2=R_3=OCH_3$, $R_5=OH$, $R_4=H$

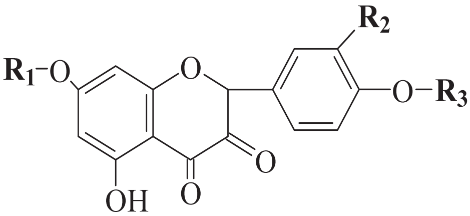
Fig. 1. Chemical structures of compounds **1**--**7**

---

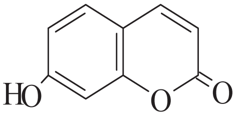
* **1**. 4-***O***-[α–L-rhamnopyranosyl-(1-2)-β–D-glucopyranosyl]-2-hydroxyl- -6-methoxybenzophenone (=tenuiphenone A)
2. 3,5-di-*C*-β–glucopyranosyl-2,4,6,3'-tetrahydroxybenzophenone (=tenuiphenone B)
3. 2',4',6,-trihydroxyphenyl-(24*Z*)-triacontene-1-one (=tenuiphenone C)
4. 2',4',6'-trihydroxyphenyl-(26*Z*)-dotriacontene-1-one (=tenuiphenone D)
5. 6-hydroxy-1,2,3,7-tetramethoxyxanthone
6. 1,7-dinethoxyxanthone
7. 7-hydroxy-1,2,3-trimethoxyxanthone

045. 陳皮 Aurantii Pericarpium

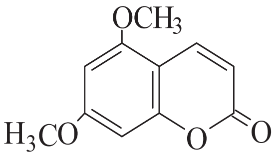
* *Citrus aurantium* L. **Rutaceae]**
C. unshiu Markovich



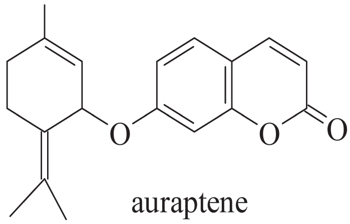
	R_1	R_2	R_3
hesperidin	$-Glc\overset{6}{-}Rha$	OH	CH_3
neohesperidin	$-Glc\overset{2}{-}Rha$	OH	CH_3
naringin	$-Glc\overset{2}{-}Rha$	H	H
poncirin	$-Glc\overset{2}{-}Rha$	H	CH_3



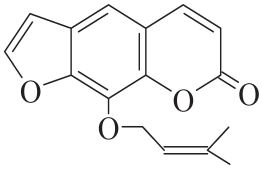
umbelliferone



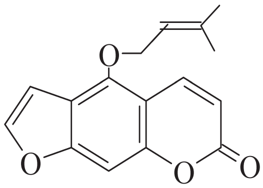
citroptene



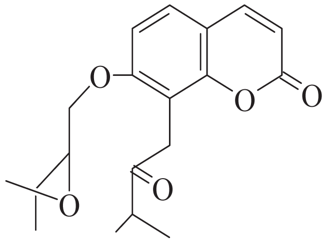
auraptene



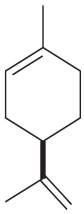
imperatorin



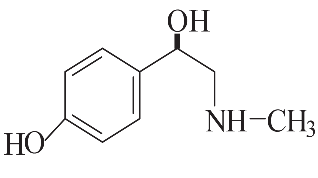
isoimperatorin



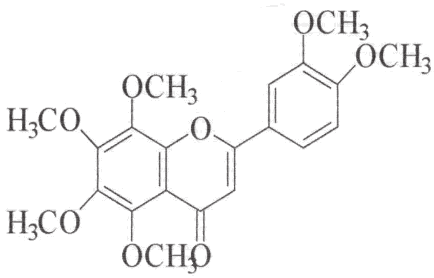
isoponcimarin



(+)-limonene



(-)-synephrine

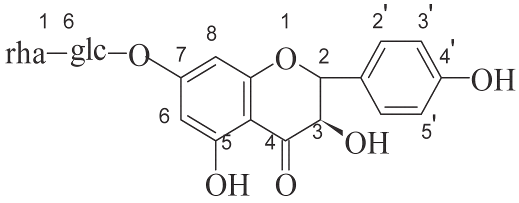


nobiletin

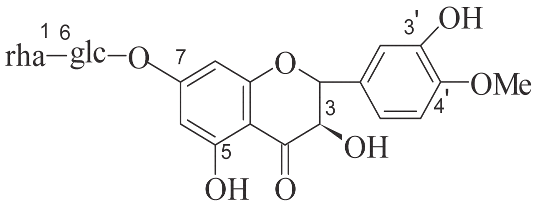
045-2-1. 橘皮(溫州蜜柑汁) Tangerine orange juice *(Citrus unshiu* Markovich) [Rutaceae]

* Flavonoid glycosides and limonoids from *Citrus* molasses

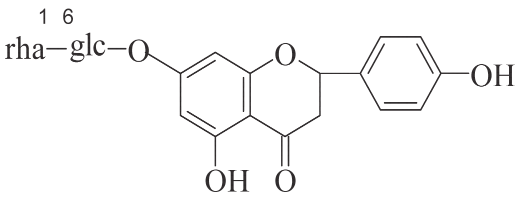
** Masanori Kuroyanagi, Hiromi Ishii, Nobuo Kawahara, Hiroyuki Sugimoto, Hideo Yamada, Kiyoshi Okihara, Osamu Shirota: *J Nat Med,* **62** (1), 107-111 (2008)



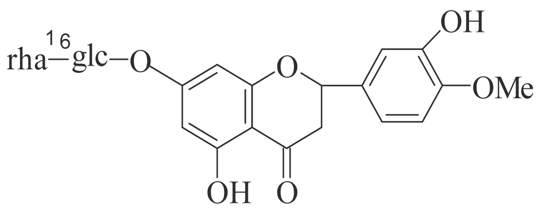
1. (2*R*,3*R*)-7-***O***-(6-***O***-α–L-rhamnopyranosyl-β–D-glucopyranosyl) aromadendrin



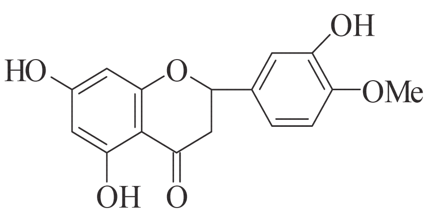
2. (2*R*,3*R*)-7-***O***-(6-***O***-α–-L-rhamnopyranosyl-β–D-glucopyranosyl)-3,3',5,7-tetrahydroxy-4'-methoxyflavone



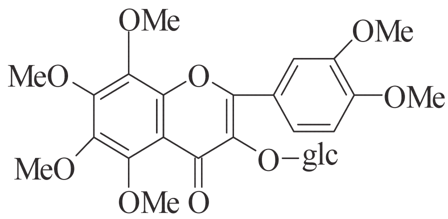
3. Narirutin



4. Hesperidin



5. Eriodictyol



6. 3'.4',5,6,7,8-hexamethoxy-3-β–D-[4-***O***-(3-hydroxy-3-methylglutaroyl)-glucosyl oxy]flavone

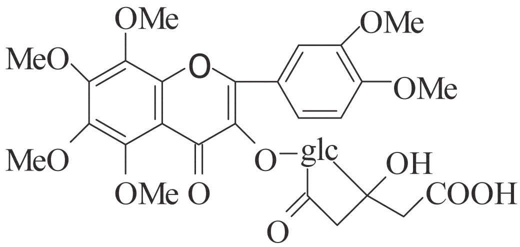
Fig. 1. Structures of compounds **1--6** Isolated from *Citrus* molasses

045-2-2. 橘皮(温州蜜柑汁) Tangerine orange juice

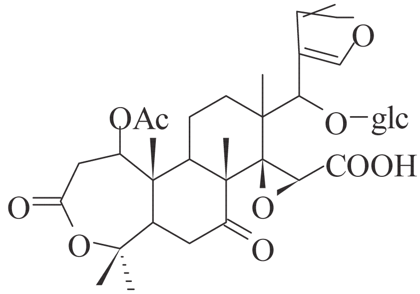
* Flavonoid glycoside and limonoids from *Citrus* molasses

** Masanori Kuroyanagi et al.: *J Nat Med,* **62** (1), 107-111 (2008)

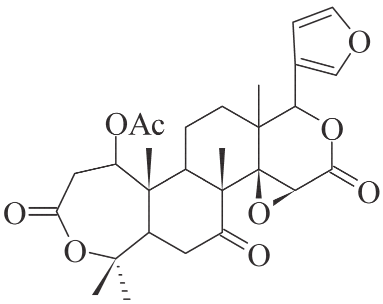
*** (Continued 045-2-1)



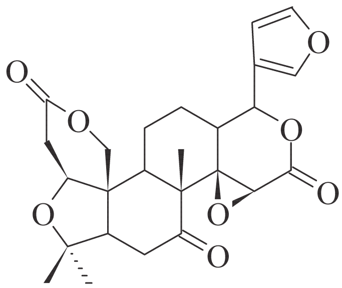
7. 3',4',5,6,7,8-hexamethoxy-3-β−D-[4-***O***-(3-hydroxy-3-methylglutaroyl)-glucosyloxy] flavone



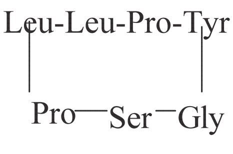
8. Nomilin 17-***O***-β−D-glucopyranoside



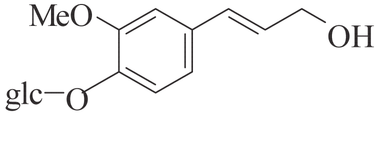
9. Nomilin



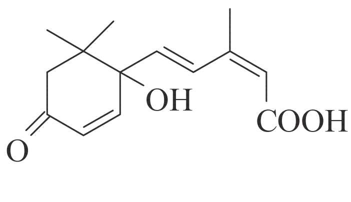
10. Limonin



11. Citrusin



12. Coniferin

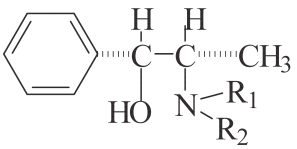


13. Abscisic acid

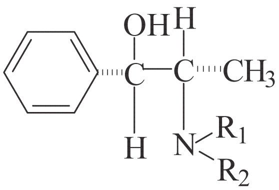
Fig. 2. Structures of compounds **7**--**13** Isolated from *Citrus* molasses

046. 麻黄 Ephedrae Herba

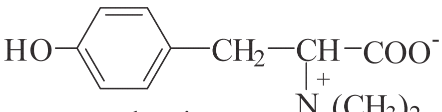
* *Ephedra sinica* Stapf. [Ephedraceae]
E. *equisetina* Bunge
E. *distachya* L.
E. *intermedica* Schrenk. et Meyer



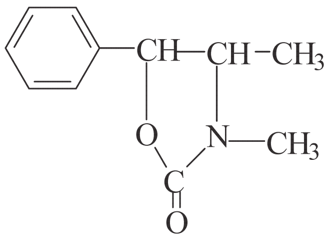
	R_1	R_2
(-)-norephedrine	H	H
(-)-ephedrine	CH_3	H
(-)-N-methylephedrine	CH_3	CH_3



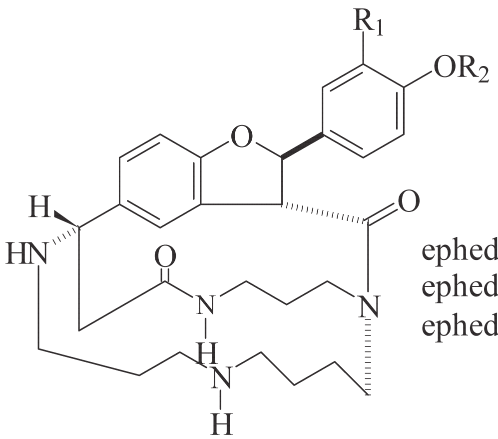
	R_1	R_2
(+)-norpseudoephedrine	H	H
(+)-pseudoephedrine	CH_3	H
(+)-N-methylpseudoephedrine	CH_3	CH_3



maokonine



ephedroxane



	R_1	R_2
ephedradine A	H	H
ephedradine B	OCH_3	H
ephedradine C	OCH_3	CH_3

Fig. 1. Chemical structures of compounds

047-1. 紫蘇葉 Perillae Herba

* *Perilla frutescens* (L) Britton var. *crispa* Decaisne [Labiatae]

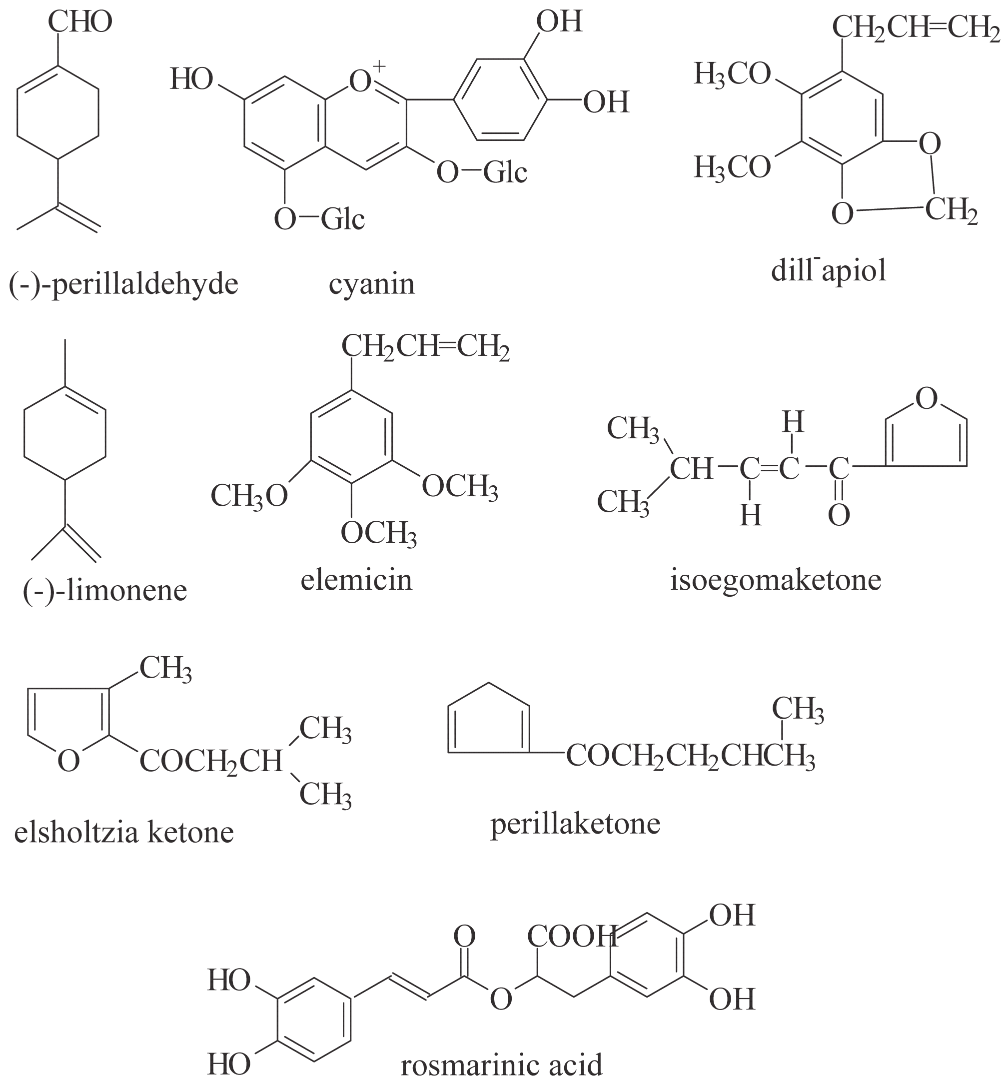


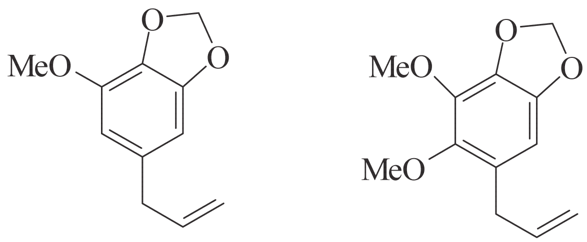
Fig. 1. Chemical structures of compounds

047-2. 紫蘇葉 Perillae Herba

* *Perilla frutescens* Britton var. *acuta* Kudo [Labiatae]

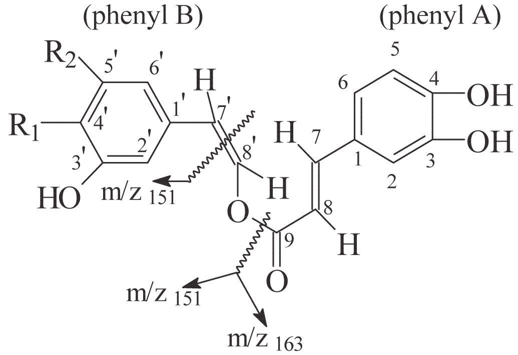
** G. Honda, Y. Koezuka, and M Tabata:
Chem. Pharm. Bull. **36**(8), 3153-3155 (1988)

*** Active Principle for Prolonging Hexobarbital-Induced Sleep



myristicin　　dillapiol

* Two New Potent Inhibitors of Xanthine Oxidase from Leave of
Perilla frutescens Britton var. *acuta* Kudo [Labiatae]:
T. Nakanishi, M. Nishi, A. Inada, H. Obata, N.Tanabe , S. Abe , M.Wakashiro :
Chem. Pharm. Bull. **38**(6), 1772-1774 (1990)



1: R_1=OH, R_2=H
2: R_1=H,　R_2=OH

1 : (*Z,E*)-2-(3,4-dihydroxyphenyl)-ethenyl ester
2 : (*Z,E*)-2-(3,5-dihydroxyphenyl)-ethenyl ester of
Caffeic ester: 3-(3,4-dihydroxyphenyl)-2-propenoic acid
* Xanthine oxidase inhibitor; Caffeic ester

Fig. 1. Chemical structures of compounds

047-3. 紫蘇葉 Perillae Herba

* *Perilla frutescens: P. citriodora, P. hirtella, P. setoyensis*

** Michiho Ito: *YAKUGAKU ZASSHI*, **130** (5) 687-695 (2010)

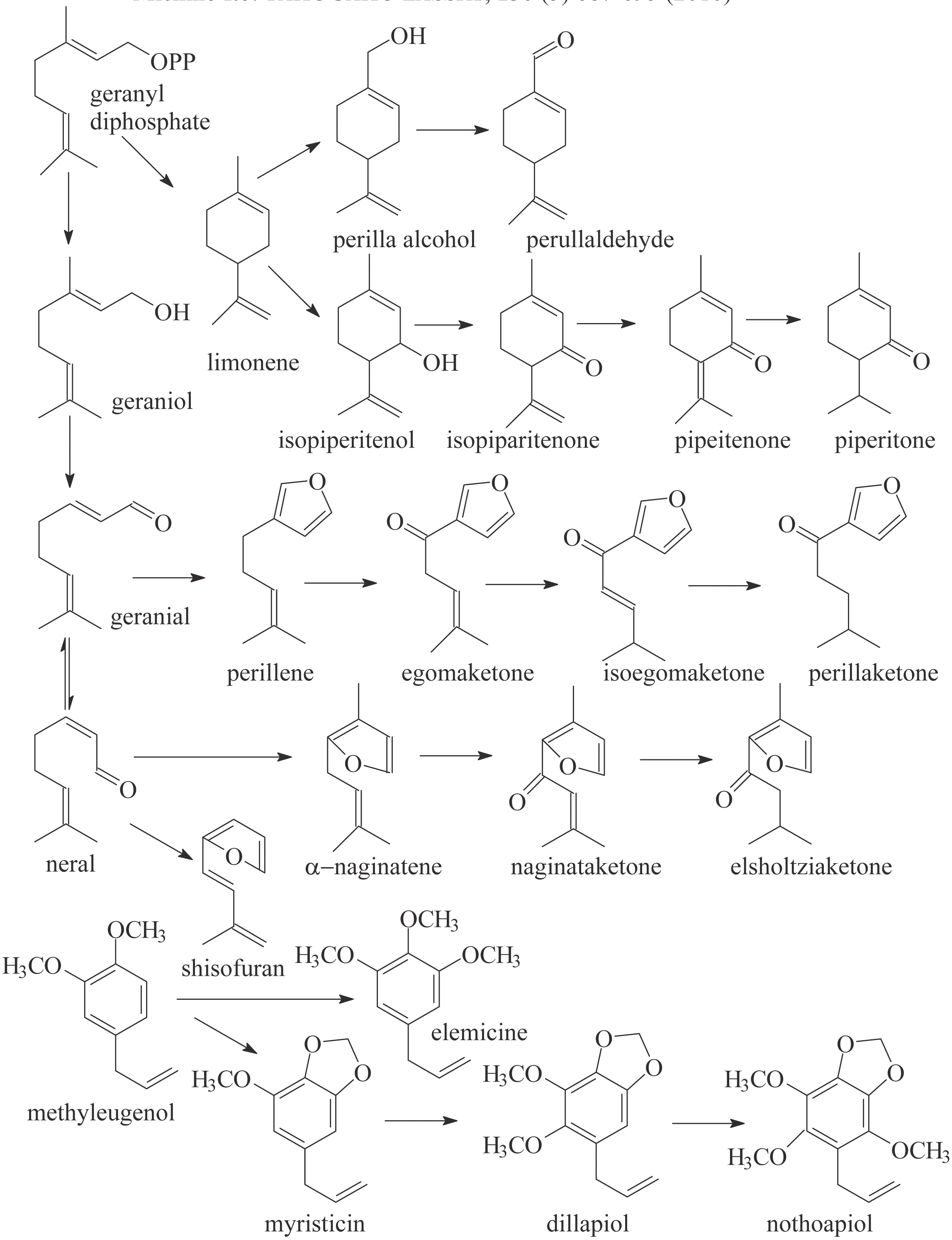
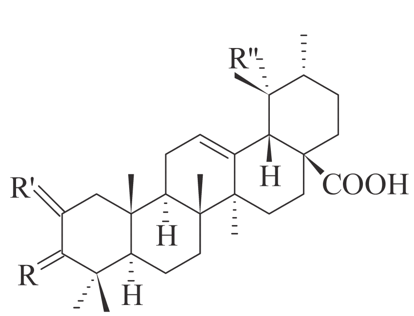


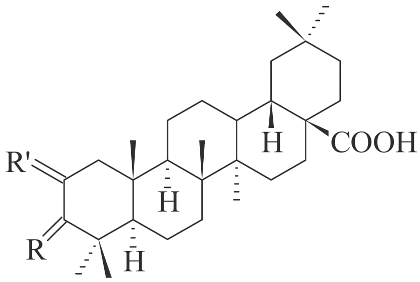
Fig. 1. Putative synthetic Pathways of Oil Constituents in Perilla

047-4. 紫蘇葉 Cytotoxic activity of *Perilla frutescens* var. *japonica* Leaf extract is due to high concentration of oleanolic acid and ursolic acids

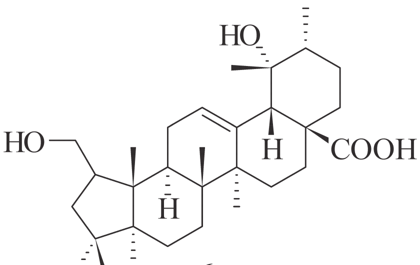
* Toshihiro Akihisa et al. : *Natural Medicines* **60** (4), 331-333 (2006)



1 R=α–H, β–OH; R'=α–H, β–H; R''=H
2 R=α–H, β–OH; R'=α–OH, β–H; R''=H
3 R=α–OH, β–H; R'=α–OH, β–H; R''=H
4 R=α–H, β–OH; R'=α–H, β–H; R''=OH
5 R=α–H, β–OH; R'=α–OH, β–H; R''=OH



7 R=α–H, β–OH; R'=α–H, β–H
8 R=α–H, β–OH; R'=α–H, β–OH
9 R=α–OH, β–H; R'=α–OH, β–H



6

Fig. 1. Chemical structures of compounds **1--9**

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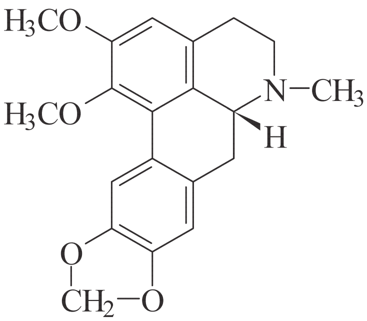
* **1**. ursolic acid, **2**. corosolic acid, **3**. 3-epicorsolic acid, **4**. pomolic acid, **5**. tormentic acid, 6, hypt **9**. 3-epimaslinic acid

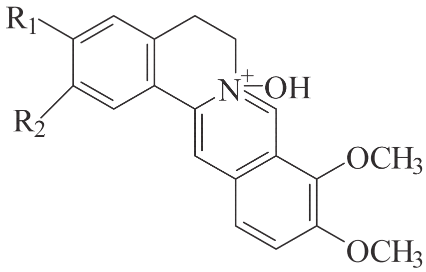
** Triterpene acids: Ursans (**1**--**6**); Oleanans (**7**--**9**).

049. 南天實 Nandinae Fructus

* *Nandina domestica* Thunb. [Berberidaceae]

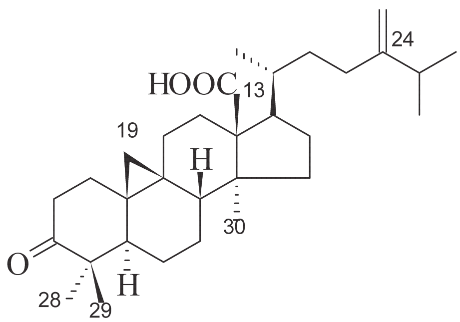


domesticine methyl ether



	R_1	R_2
berberine	O−CH_2−O	
jateorrhizine	OCH_3	OCH_3

* Tetsuya Kodai, Yoshinori Horiuchi, Yasuhiro Nishioka, Naoki Noda: *J Nat Med* **64** (4) 216-218 (2010)

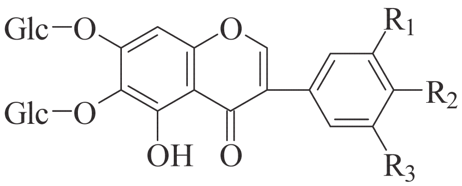


24-methylene-3-oxocycloartane 13-carboxylic acid

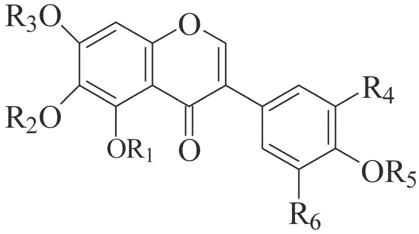
Fig. 1. Chemical structures of compounds

050-1. 射干 Belamcandae Rhizoma

* *Belamcanda chinensis* DC. [Iridaceae]



tectoridin R_1=H, R_2=OH, R_3=H
iridin R_1=OH, R_2=OCH_3, R_3=OCH_3



	R_1	R_2	R_3	R_4	R_5	R_6
1	H	H	H	OH	CH_3	H
2	H	CH_3	H	H	H	H
3	H	CH_3	H	OCH_3	H	H
4	H	CH_3	H	OCH_3	CH_3	OH
5	CH_3	-CH_2-		OCH_3	CH_3	OCH_3

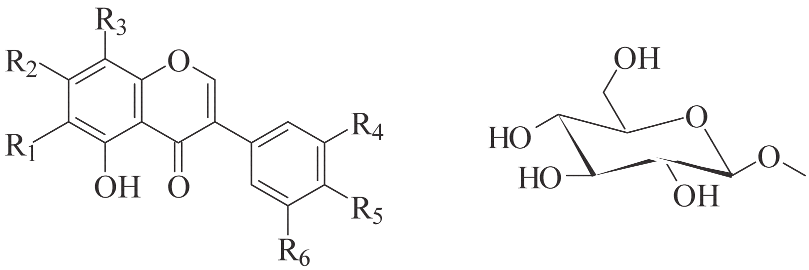
* **1**: 5,6,7,3'-tetrahydroxy-4'-methoxyisoflavone
2: tetorigenin
3: iristectorigenin A
4: irigenin
5: irisflorentine

** Suk Woo Kang, Min Cheol Kim, Chul Young Kim, Sang Hoon Jung, and Byung Hun Um: *Chem. Pharm. Bull.* **56**(10), 1452-1454 (2008)

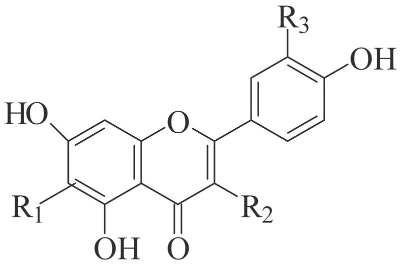
050-2. 射干 Belamcandae Rhizoma

* *Belamcanda chinensis* (L.) DC. [Iridaceae]

** Masataka Moriyasu, Yukari Igi, Momoyo Ichimaru, Kinuko Iwasa, Junko Kobayskawa, Fumiko Sato-Nishimori, Yoshizumi Matsukawa, Chiaki Nagase : *J Nat Med,* **61** (3), 329-333 (2007)



1: R_1=OMe, R_2=OGlc, R_5=OH, R_3=R_4=R_6=H (tectridine)
2: R_1=R_4=OMe, R_2=OGlc, R_5=OH, R_3=R_6=H (iristectectrigenin A-7-glucoside)
3: R_1=OMe, R_2=OH, R_5=OGlc, R_3=R_4=R_6=H (tectrigenin-4'-glucoside)
5: R_1=OMe, R_2=R_3=R_5=OH, R_4=R_6=H (8-hydroxytectrigenin)
6: R_1=R_4=OMe, R_2=R_3=R_5=OH, R_6=H (8-hysroxyiristectrigenin A)
7-1: R_1=R_5=R_6=OMe, R_2=R_3=R_4=OH (8-hydroxyirigenin)
7-2: R_1=OMe, R_2=R_4=R_5=OH, R_3=R_6=H (irilin D)
8: R_3=OMe, R_2=R_5=OH, R_1=R_4=R_6=H (isotectrigenin)
9: R_1=OMe, R_2=R_5=OH, R_3=R_4=R_6=H (tectrigenin)
10: R_1=R_5=OMe, R_2=R_4=OH, R_3=R_6=H (iristectrigenin B)
11-2: R_1=R_5=R_6=OMe, R_2=R_4=OH, R_3=H (irigenin)



4: R_3=OMe, R_2=OGlc, R_1=H (astragalin)
11-1: R_1=OMe, R_2=R_3=H (hispiludin)

Fig. 1. Structures of Compounds in Belamcandae Rhizoma

V
・
心血管・血液系疾患

051 ～ 068

V-1 ～ V-2

△：成分未表示

051-1-1. 附子 Aconiti Tuber

* *Aconitum carmichaeli* Debeaux [Ranunculaceae]

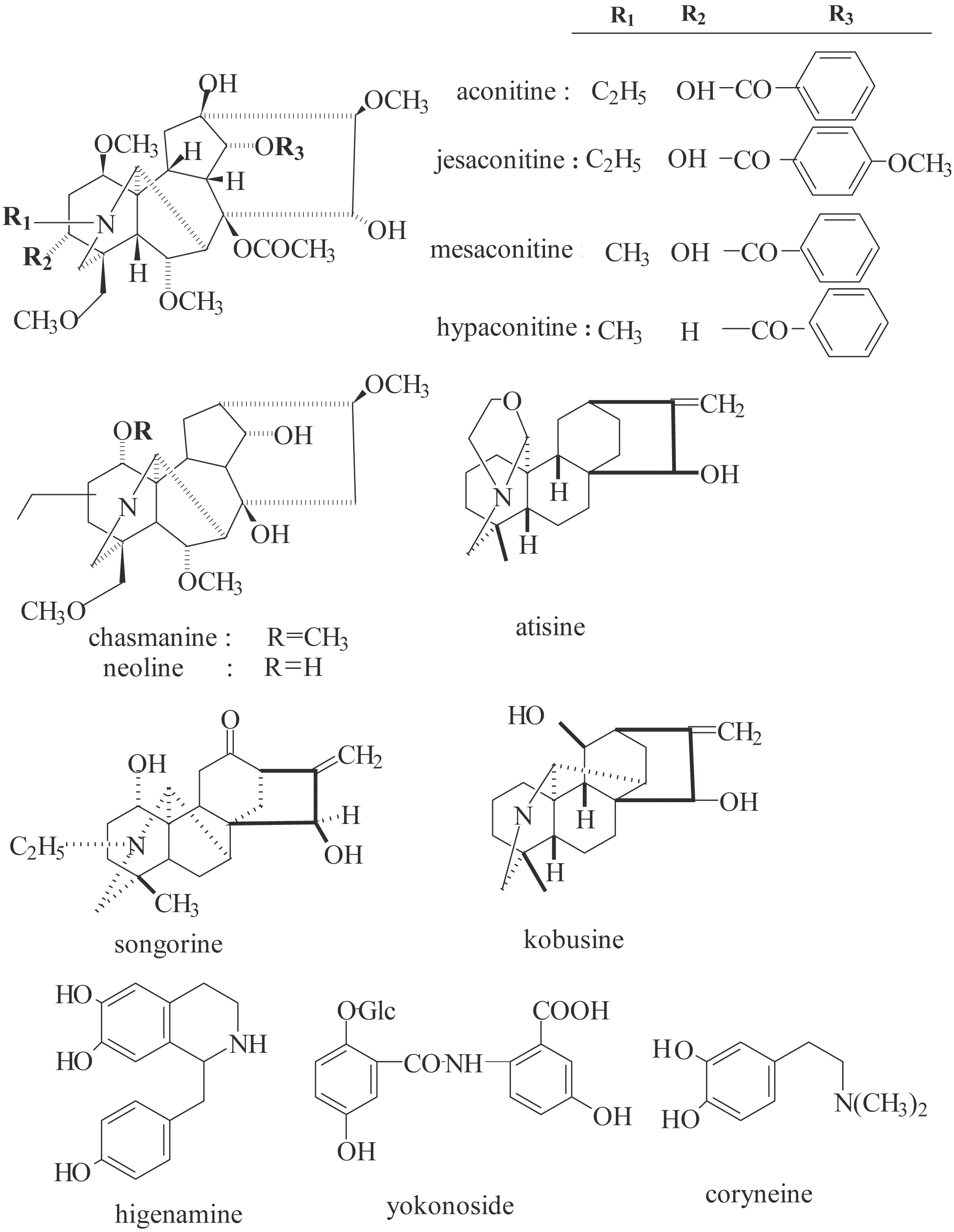


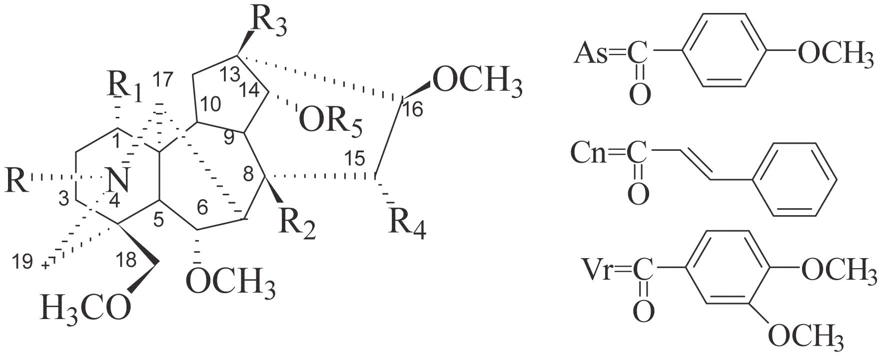
Fig. 1. Chemical structures of compounds

051-1-2. 附子 Aconiti Tuber

* *Aconitum carmichaeli* Debeaux [Ranunculaceae]

** S-H. Shim, J-S. Kin, and S-S. Kang,
Chem. Pharm. Bull. **51**(8), 999-1002 (2003)

*** Norditerpenoid alkaloid:



1: neoline
$R=CH_2CH_3$, $R_1=R_2=OH$, $R_3=R_4=R_5=H$

2: 14-***O***-acetylneoline
$R=CH_2CH_3$, $R_1=R_2=OH$, $R_3=R_4=H$, $R_5=Ac$

3: **14-*O*-cinnamoylneoline**
$R=CH_2CH_3$, $R_1=R_2=OH$, $R_3=R_4=H$, $R_5=$**Cn**

4: **14-*O*-anisoylneoline**
$R=CH_2CH_3$, $R_1=R_2=OH$, $R_3=R_4=H$, $R_5=$**As**

5: **14-*O*-veratroylneoline**
$R=CH_2CH_3$, $R_1=R_2=OH$, $R_3=R_4=H$, $R_5=$**Vr**

6: foresaconitine
$R=CH_2CH_3$, $R_1=OCH_3$, $R_2=OAc$, $R_3=R_4=H$, $R_5=As$

7: crassicauline
$R=CH_2CH_3$, $R_1=OCH_3$, $R_2=OAc$, $R_3=OH$, $R_4=H$, $R_5=As$

8: **lipo-14-*O*-anisoylbilhaconine**
$R=CH_2CH_3$, $R_1=OCH_3$, $R_2=$OLip*a*,. $R_3=OH$, $R_4=H$, $R_5=As$

9: lipohypaconitine
$R=CH_3$, $R_1=OCH_3$, $R_2=$OLip*b*., $R_3=R_4=OH$, $R_5=Bz$

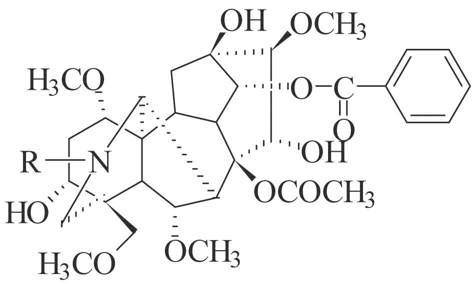
10:bikhaconine
$R=CH_2CH_3$, $R_1=OCH_3$, $R_2=R_3=OH$, $R_4=R_5=H$

* Lip.*a:*linoleoyl, palmitoyl, stearoyl, oleoyl
Lip.*b*: linoleoyl, palmitoyl, stearoyl, oleoyl, linolenoyl

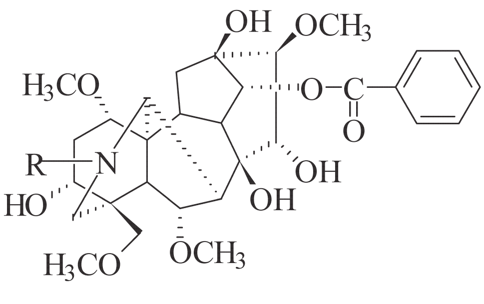
Fig. 1. Chemical structures of compounds **1**--**10**

051-1-3. 附子 Processi Aconiti Tuber

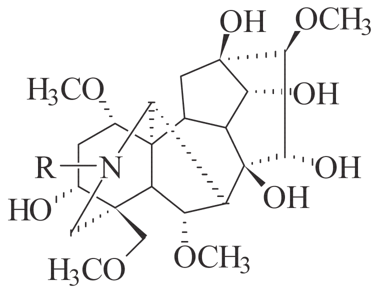
* *Aconitum carmechaeli* Debeaux
A. *japonicum* Thunb. [Ranunculaceae]



aconitine R=C_2H_5
mesaconitine R=CH_3



benzoyl aconine R=C_2H_5
benzoyl mesaconine R=CH_3

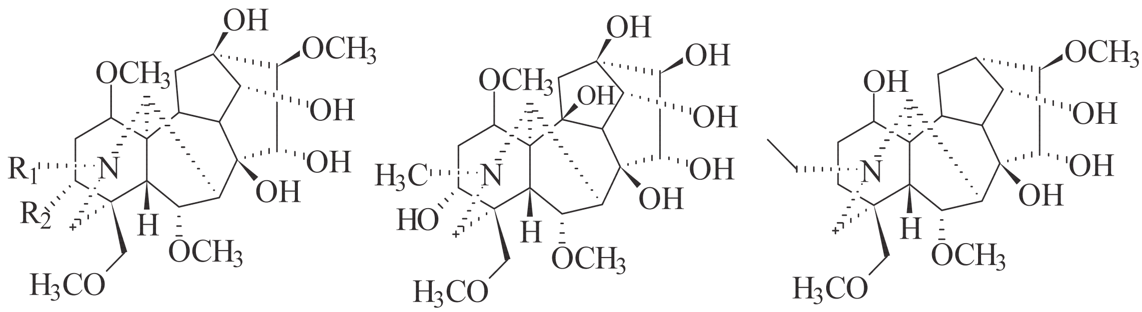


aconine R=C_2H_5
mesaconine R=CH_3

051-1-4. 附子 Aconiti Tuber

* Cardioactive C_{19}-Diterpenoid Alkaloids from the Lateral Roots of *Aconitum carmichaeli* " Fu Zi"

** Xiu-Xin Liu, Feng-Peng Wang et al :
Chem. Pharm. Bull. **60** (1) 144-149 (2012)



1 N-Deethylaconine
R_1=H, R_2=OH
3 Hypaconine
R_1=CH_3, R_2=H
4 Mesaconine
R_1=CH_3, R_2=OH

Beiwutinine

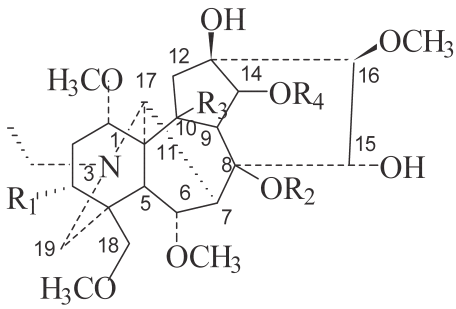
5 15α-Hydroxyneoline

Fig. 1. Chemical structures of compounds **1**--**5**

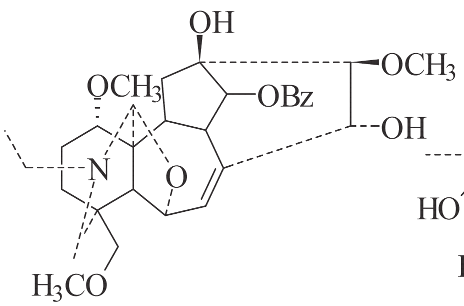
051-2. 附子 Aconiti Tuber

* Norditerpenoid alkaloids from *Aconitum manshuricum* Nakai [Ranunculaceae]

** Katsuhiro Ishimi, Nitsuko Makino, Yasuo Asada, Yoshiyuki Ichinohe, Yasuo Fujimoto: *J Nat Med*, **60** (3), 255-257 (2006)



	R_1	R_2	R_3	R_4
1:	OH	Bz	H	Bz
3:	OH	Ac	OH	Bz
5:	OH	Ac	H	Bz
7:	H	Ac	H	Bz
8:	OH	H	H	Bz
9:	OH	H	H	H



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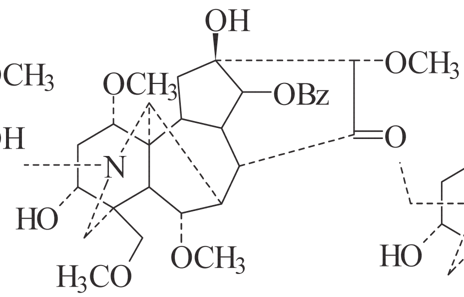

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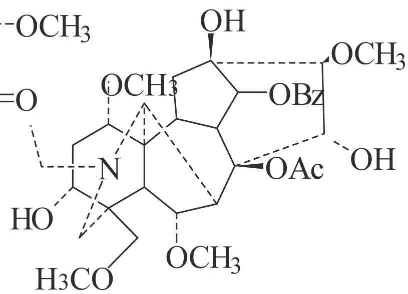


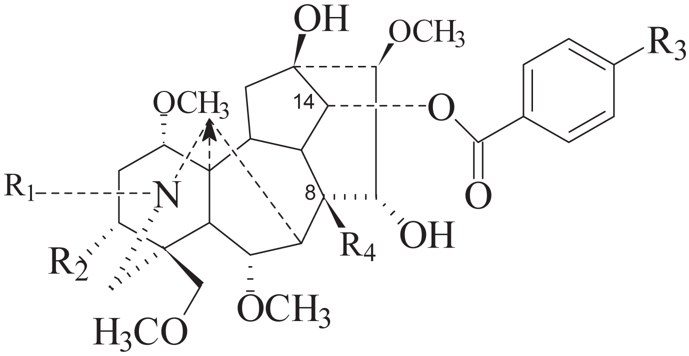
6

Fig. 1. The structures of Diterpenoid Alkaloids from *Aconitum manshuricum*

* **1: manshuritine**
2: beiwudine
3: beiwutine
4: 16-*epi*-pyromesaconitine
5: mesaconitine
6: aconitine
7: hypaconitine
8: 14-benzoylmesaconine
9: mesaconine

051-3-1. 附子 Aconiti Tuber

* Yuichi Nakamura, Kaori Yomura, Toshihiro Kammoto, Makoto Ishimatsu, Yuichi Kikuchi, Kazuaki Niitsu, Susumu Terabayashi, Shuichi Takeda, Hiroshi Sasaki, Keiko Arimoto, Minoru Okada, Setsuko Sekita, Motoyoshi Satake,Yukihiro Goda: *J Nat Med,* **60** (4), 285-294 (2006)



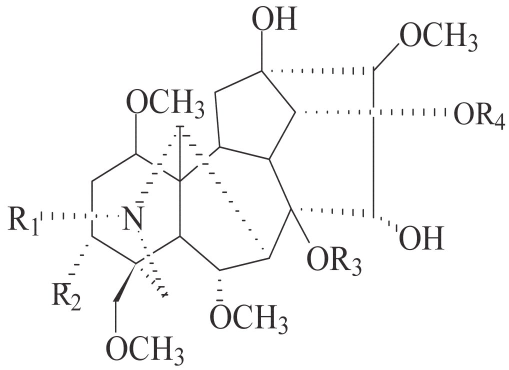
	R_1	R_2	R_3	R_4
aconitine	C_2H_5	OH	H	$OCOCH_3$
jesacinitine	C_2H_5	OH	OCH_3	$OCOCH_3$
mesaconitine	CH_3	OH	H	$OCOCH_3$
hypaconitine	CH_3	H	H	$OCOCH_3$
benzoylmesaconine	CH_3	OH	H	OH

Fig. 1. Structures of Aconitum diester alkaloids

051-3-2. 附子 Aconiti Tuber

* Pharmacokinetic study of benzoylmesaconine in rats using an enzyme immunoassay system

** Feng Zuo, Jing Zhao, Norio Nakamura, Jiang-Jing Gao, Teruaki Akao, Masao Hattori, Yuji Oomiga, Yuichi Kikuchi: *J Nat Med,* **60** (4), 313-321 (2006)



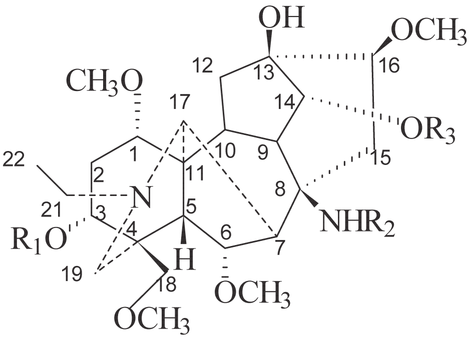
Compound		(%)a)
benzoylmesaconine (BM)	R_1=CH_3, R_2=OH, R_3=H, R_4=COC_6H_5	100·0
aconitine (A)	R_1=C_2H_5, R_2=OH, R_3=$COCH_3$, R_4=COC_6H_5	0·1
mesaconitine (M)	R_1=CH_3, R_2=OH, R_3=$COCH_3$, R_4=COC_6H_5	0·1
hypaconitine	R_1=CH_3, R_2=H, R_3=$COCH_3$, R_4=COC_6H_5	1·0
jesaconitine	R_1=C_2H_5, R_2=OH, R_3=$COCJ_3$, R_4=COC_6H_4(*p*-OCH_3)	8·0
benzoylhypaconine	R_1=CH_3, R_2=H, R_3=H, R_4=COC_6H_5	10·0
benzoylaconine (BA)	R_1=C_2H_5, R_2=OH, R_3=H, R_4=COC_6H_5	64·5
anisoylaconine	R_1=C_2H_5, R_2=OH, R_3=H, R_4=COC_6H_4(*p*-OCH_3)	0·8
14-aconine	R_1=C_2H_5, R_2=OH, R_3=H, R_4=H	0·2
mesaconine	R_1=CH_3, R_2=OH, R_3=H, R_4=H	0·0

a): Cross reactivity (%) represents concentration of benzoylmesaconine required toinduce 50% inhibition of binding to antiserum.

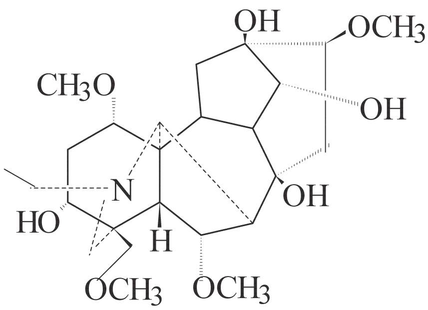
Table 1 Cross reactivity of benzoylmesaconine-related compounds in *Aconitum* tuber. Cross reactivity (%) represents relative concentration of benzoylmesaconine required to induce 50% inhibition of binding to antiserum.

051-4-1. 附子 Aconiti Tuber

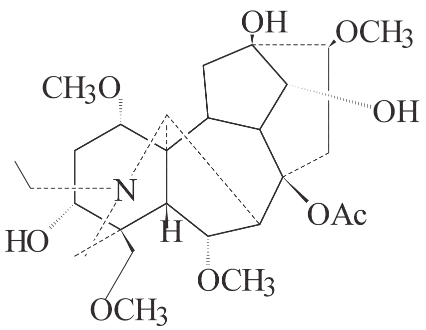
* *Aconitum hemsleyanum* Pritz. [Ranunculaceae]
** X-L Zhou, Q-H Chen, D-L Chen, and F-P Wang, *Chem. Pharm. Bull.* **51**(5), 592-594 (2003)
*** C19-Diterpenoid Alkaloid with 8-Amino Group



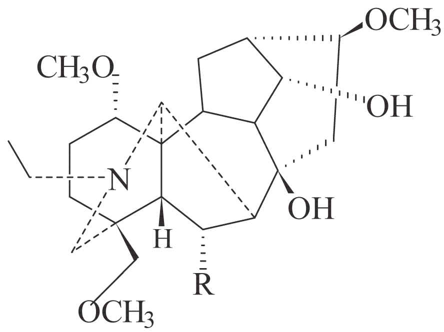
1 $R_1=R_2=R_3=H$
2 $R_1=R_2=R_3=Ac$



3



4 R=Bz
5 R=As



6 $R=OCH_3$
7 R=H

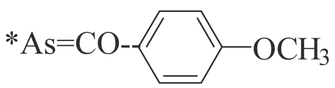


Fig. 1. Chemical structures of compounds **1--7**

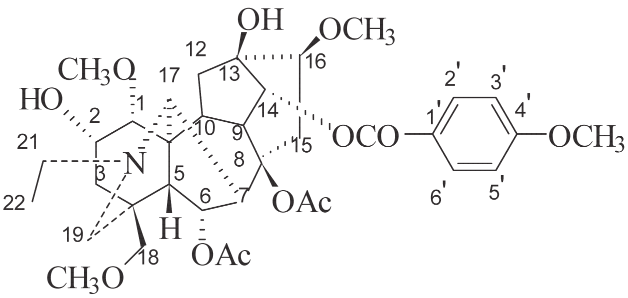
* **1** **hemsleyatine; 2** hemsleyatine acetylate ; **3** pseudoaconine
4 indaconitine **5** yunaconitine ; **6** chasmanine ; **7** talatisamine

051-5-1. 附子 Aconiti Tuber

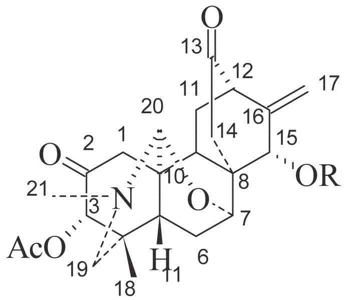
* *Aconitum ouvrardianum* Hand.-Mazz. [Ranunculaceae]

** Lang-Huan Hou, Dong-Lin Chen, Xi-Xian Jian, and Feng-Peng Wang: *Chem. Pharm. Bull.* **55** (7), 1090-1092 (2007)

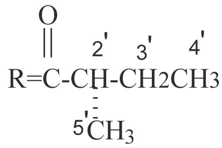
*** C_{19}-diterpenoid alkaloids and C_{20}-diterpenoid alkaloids



1. ouvrardiantine



2. ouvradiandine A



3. ouvrardiandine B

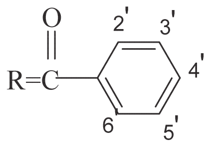


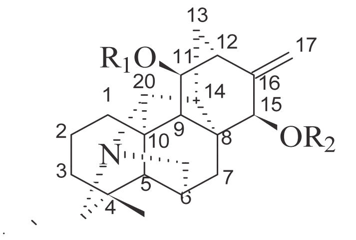
Fig. 1. The Structure of Compounds **1**--**3** from *Aconitum ouvrardianum*

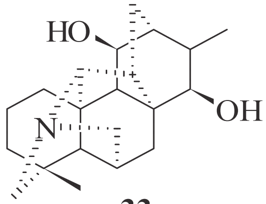
051-6-1. 附子 Aconiti Tuber

* Structure-activity relationships and the cytotoxic effects of novel diterpenoid alkaloid derivatives against A549 human lung carcinoma cells

** Koji Wada, Masaharu Hazawa, Kenji Takahashi, Takao Mori, Norio Kawahara, Ikuo Kashiwakura:

J Nat Med **65** (1) 43-49 (2011)

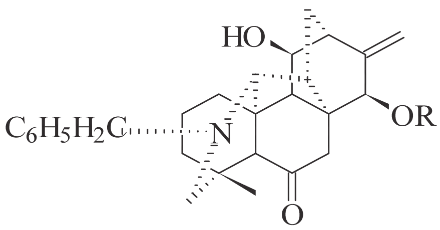




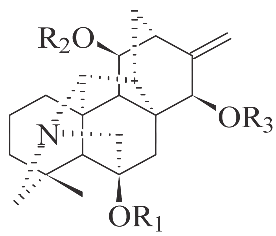
33

	R1	R2
1	H	H
30	Bz	H
31	As	H
32	Vr	H
34	Cm	H
35	PB	H
36	MB	H
37	NB	H
38	H	NB
39	NB	NB

Ac=COCH3
As=COC6H4OCH3 (*p*)
Bz=COC6H5
Cm=COCH=CHC6H5
MB=COC6H4CF3 (*m*)
NB=COC6H4NO2 (*p*)
PB=COC6H4CF3 (*p*)
Vr=COC6H3(OCH3)2 (3,4)



3 R=H
4 R=CH2-C6H5



	R1	R2	R3
2	H	H	H
5	Bz	H	H
6	Bz	Bz	H
7	NB	NB	Bz
8	Vr	H	H
9	H	Vr	H
10	H	H	Vr
11	As	H	H
12	H	As	H

	R1	R2	R3
13	H	H	As
14	As	As	H
15	As	H	As
16	H	As	As
17	NB	H	H
18	H	NB	H
19	H	H	NB
20	NB	NB	H
21	NB	H	NB

	R1	R2	R3
22	H	NB	NB
23	NB	NB	NB
24	Cm	H	H
25	H	Cm	H
26	MB	H	H
27	H	MB	H
28	PB	H	H
29	H	PB	H

Fig. 1. Structure of C20-diterpenoid alkaloids and their derivatives

051-6-2. 附子 Aconiti Tuber

* Structure-activity relationships and the cytotoxic effects of novel diterpenoid alkaloid derivatives against A549 human lung carcinoma cells

** Koji Wada, Masaharu Hazawa, Kenji Takahashi, Takao Mori, Norio Kawahara, Ikuo Kashiwakura:
J Nat Med **65** (1) 43-49 (2011)

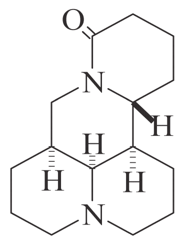
*** *Aconitum yesoense* var. *macroyesoense* :
Diterpenoid alkaloids: kobusine (**1**), pseudokobusine (**2**), and 15-veratroylpseudeokobusine (**10**).

**** Thirty acyl derivatives, *N*-benzyl-*N*,6- seco-6-dehydropseudokobusine (**3**), *N*,15-dibenzyl-*N*,6-seco-6-dehydropseudokobusine (**4**), 6-benzoylpseudokobusine (**5**), 6,11-dibenzoylpseudokobusine (**6**), 15-benzoyl-6,11-di-*p*-nitrobenzoylpsudokobusine (**7**), 6-veratroylpseudokobusinw (**8**), 11-veratroylpseudokobusine (**9**), 6-anisoylpseudokobusine (**11**), 11-anisoylpseudokobusine (**12**), 15-anisoylpseudokobusine (**13**), 6,11-dianisoylpseudokobusine (**14**), 6,15-dianisoylpseudokobusine (**15**), 11,15-dianisoylpseudokobusine (**16**), 6-*p*-nitrobenzoylpseudokobusine (**17**), 11-*p*-nitrobenzoylpseudokobusine (**18**), 15-*p*-nitrobenzoylpseudokobusine (**19**), 6,11-di-*p*-nitrobenzoylpseudokobusine (**20**), 6,15-di-*p*-nitrobenzoylpseudokobusine (**21**), 11,15-di-*p*-nitrobenzoylpseudokobusne (**22**), 6,11,15-tri-*p*-nitrobenzoylpseudokobusine (**23**), 6-cinnamoylpseudokobusine (**24**), 11-cinnamoylpseudokobusine (**25**), 6-(*m*-tri-fluoromethylbenzoyl)pseudokobusine (**26**), 11-(*m*-tri-fluoromethylbenzoyl) pseudokobusin (**27**), 11-benzoyl-kobusine (**30**), 11-anisoylkobusine (**31**), 11-veratroylkobusine (**32**), dihydrokobusine (**33**), 11-cinnamoylkobusine (**34**) and 11-(*m*-trifluoromethylbenzoyl)kobusine (**36**), were prepared by methods described previously.

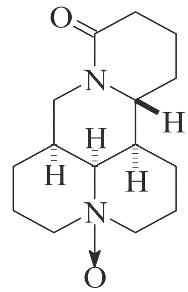
***** Six semi-synthetic derivatives ; 6-(*p*-trifluoromethylbenzoyl)pseudokobusine (**28**), 11-(*p*-trifluoromethylbenzoylpseudokobusine (**29**), 11-(*p*-trifluoromethylbenzoyl)-kobusine (**35**), 11-*p*-nitrobenzoylkobusine (**37**), 15-*p*-nitrobenzoylkobusine (**38**), and 11,15-di-*p*-nitrobenzoylkobusine (**39**), were prepared from kobusine (**1**) and pseudokobusine (**2**).

052-1. 苦參 Sophorae Radix

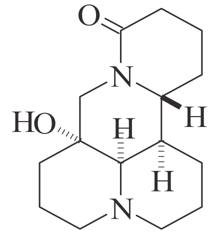
* *Sophora angustifolia* Sieb. et Zucc. [Leguminosae]
(=*S.* *flavescens* Ait.)



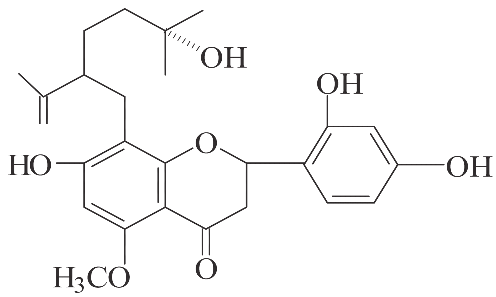
(+)-matrine



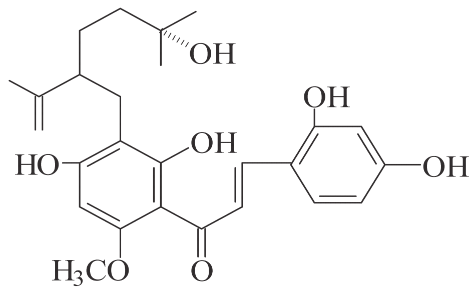
(+)-oxymatrine



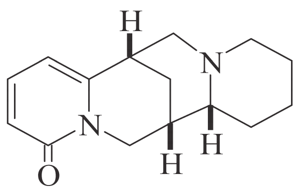
(+)-sophoranol



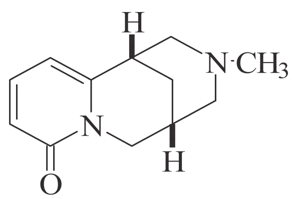
kurarinol



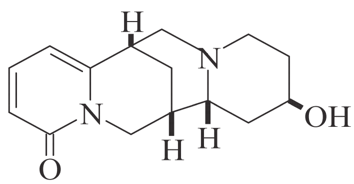
kuraridiol



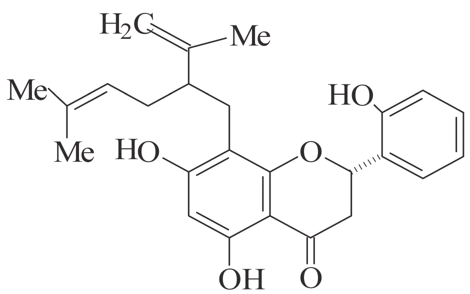
(-)-anagyrine



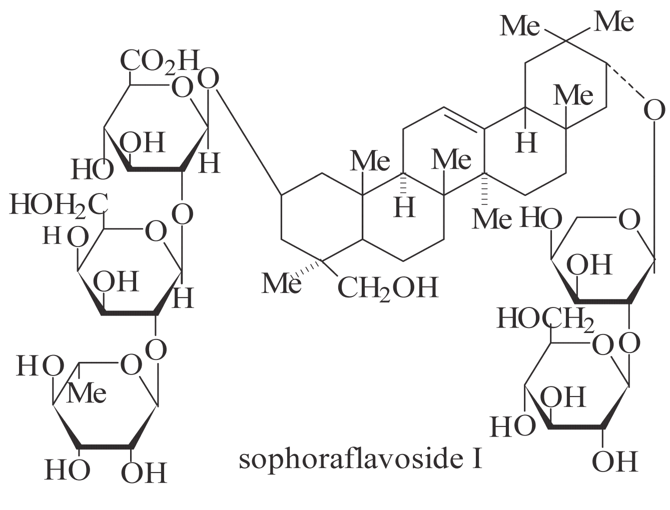
(-)-methylcytisine



(-)-baptifoline



kushenol A



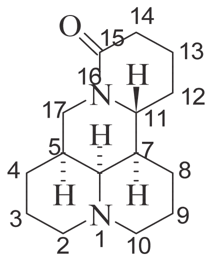
sophoraflavoside I

Fig. 1. Chemical structures of compounds

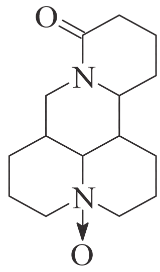
052-2. 苦參 Sophorae Radix

**Sophora flavescens* Aiton [Leguminosae]

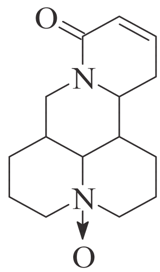
** *Natural Medicines,* **48** (3), 180-184 (1994)



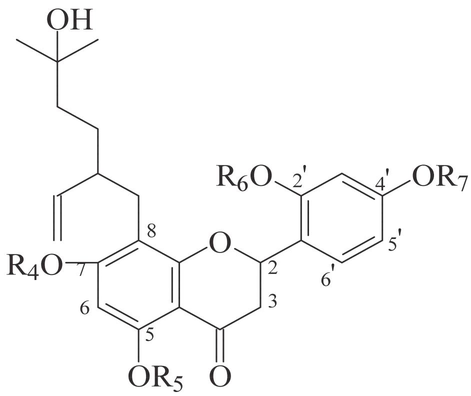
matrine



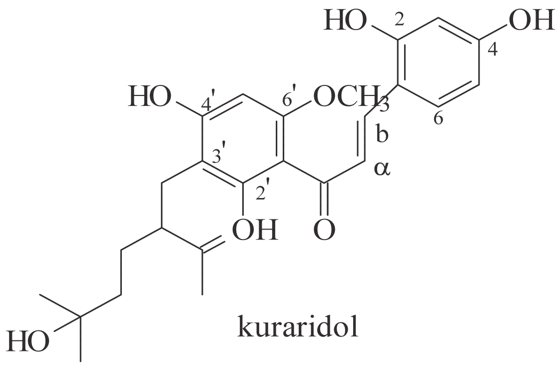
matrine-N-oxide
(oxymatrine)



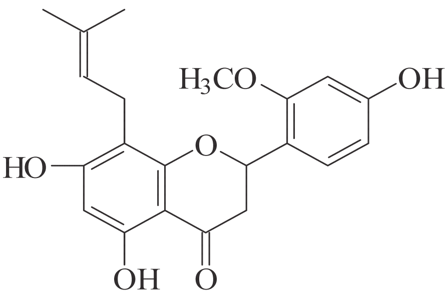
sophocarpine N-oxide



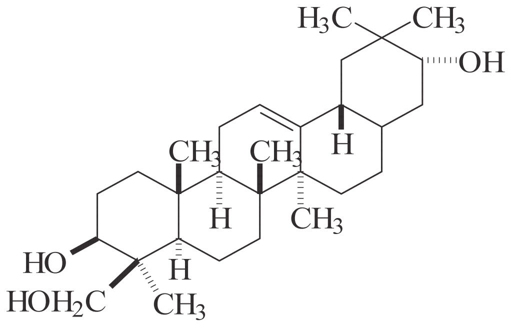
kurarinol $R_4=R_6=R_7=H$, $R_5=CH_3$
neokurarinol $R_4=R_7=H$, $R_5=R_6=CH_3$
norkurarinol $R_4=R_5=R_6=R_7=H$



kuraridol



iso-kurarinone



soyasapogenol B

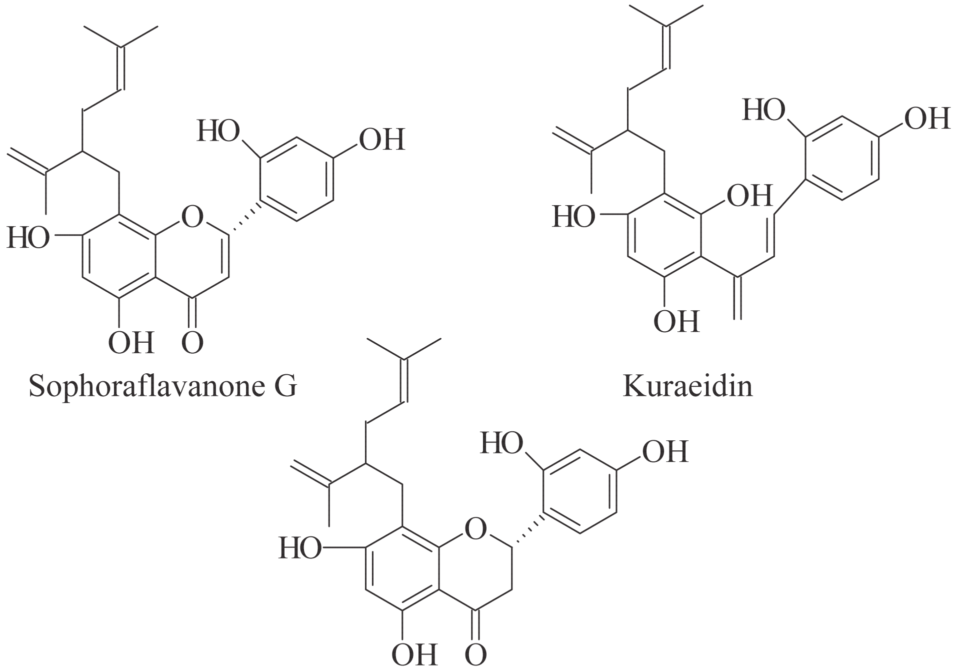
{*Sophora flavescens*
Komatsu et al :*Chem Phaarm Bull* ,
21, 2733 (1973)}

Fig. 1. Chemical structures of compounds

052-3. 苦參 Sophorae Radix

* *Sophora flavescens* Ait.
(=*S. angustifolia* Sieb. et Zucc.) [Leguminosae]

** Soo Jin Kim, Kun Ho Son, Hyun Wook Chuang, Sam Sik Kang, and Hyum Pyo Kim: *Biol. Pharm. Bull.* **26**(9), 1348-1350 (2003)



Sophoraflavanone G

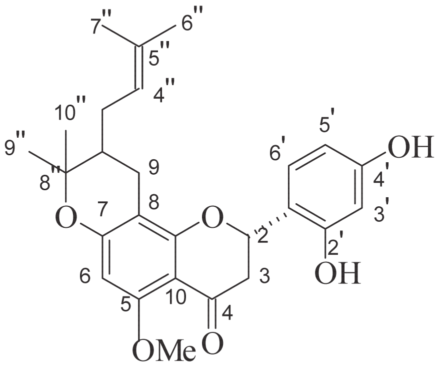
Kuraeidin

Kurarinone

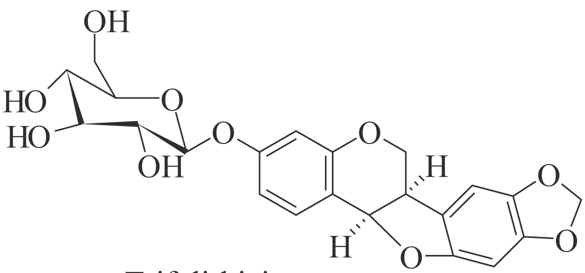
Fig. 1. Chemical Structures of the Prenylated Flavonoids from *Sophora flavescens*

052-4. 苦參 Sophorae Radix

* *Sophora angustifolia* Sieb.et Zucc. [Leguminosae]
** Matsuo K, Ito M, Honda G, Qui T-K, Kiuchi F:
Natural Medicines, **57** (6), 253-255 (2003)
*** Penylated flavone (4)



1. sophoraflavanone G, **2.** (-)-kurarinone , **3.** kushenol L
4. new **prenylated flavanone** , **5.** 2'-methoxykurarinone
6. 7,4'-dihydroxy-5-methoxy-8-(r,r-dimethylallyl)-flavanone
7. leachianone , **8.** 8-prenylnaringenin , **9.** noranhydroicaritin
10. alopecurone



Trifolirhizin

* Sook Kyung Hyun, Woo-Hee Lee, Da Mi Jeong, Youngsoo Kim, and Jae Sue Choi: *Biol. Pharm. Bull.* **30**(1), 154-158 (2007)
** Inhibit Effects of Kurarinol, Kuraridinol, and Trifolirhizin from *Sophora flavescens* on Tyrosine and Melanin Synthesis.

052-5-1. 苦參 Sophorae Radix

* *Sophora flavescens* Aiton [Leguminosae]

** J-H Kim, Y-B R~ N-S Kang, B-W Lee, J-8 Reo, I-Y Jeong and K-H Park: *BioI Pharm Bull*, **29** (2), 302-305 (2006)

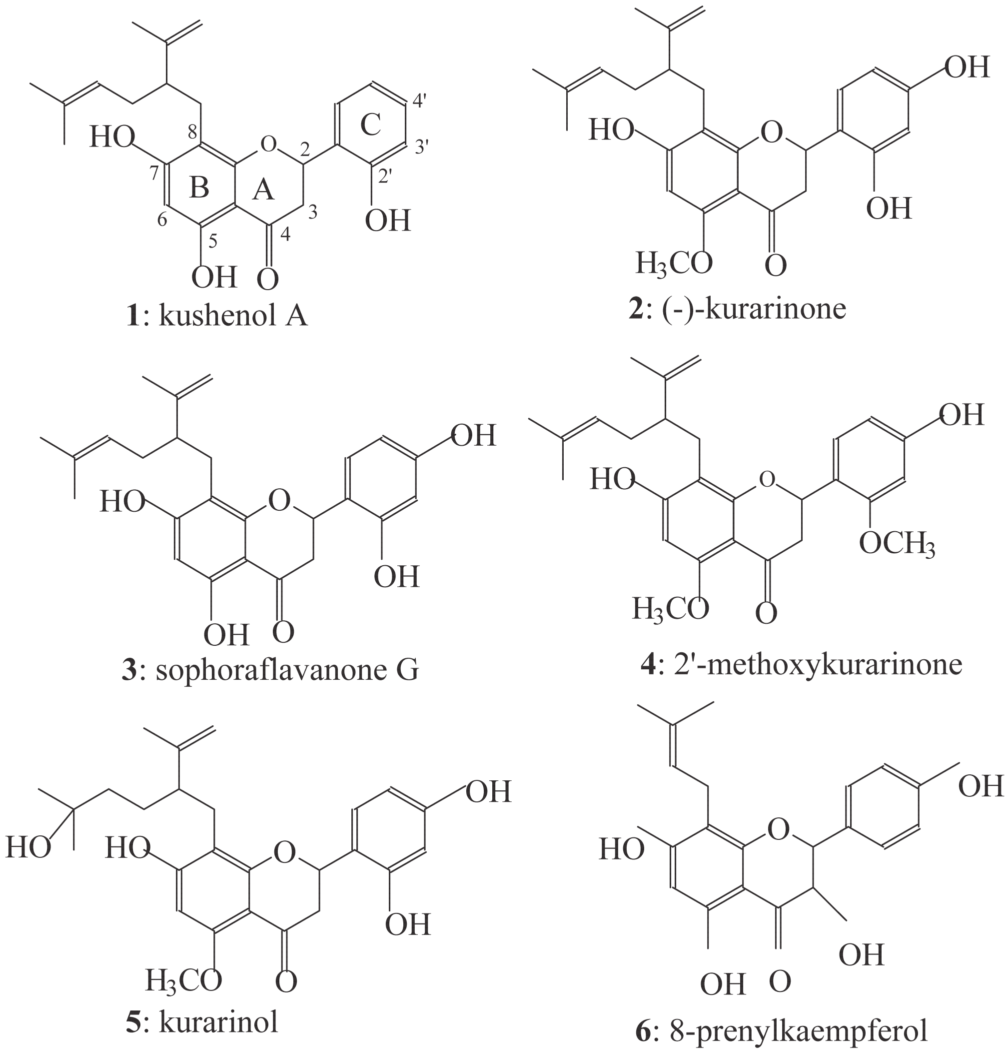


Fig. 1. Structures of Prenylated Flavonoids **1--6** from *Sophora flavescens*

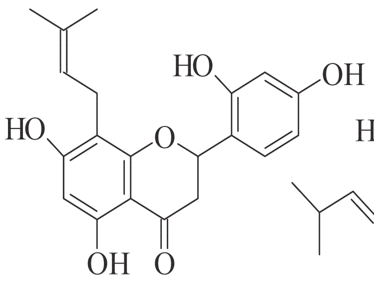
-

052-5-2. 苦參 Sophorae Radix

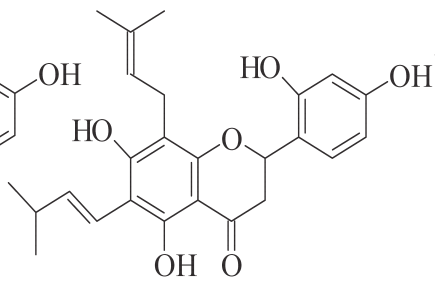
* *Sophora flavescens* Aiton [Leguminosae]

** Prenylated Flavonoids

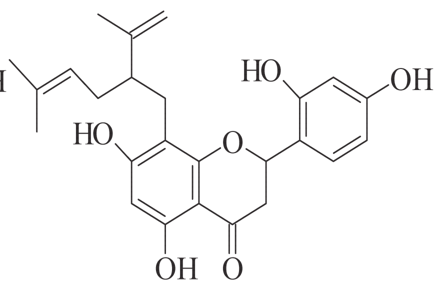
*** Hyun Ah Jung, Da-Mi Jeong, Hae Young Chung, Hyun Ae Lim, Ji Young Kim, Na Young Yoon, and Jae Sue Choi: *Biol. Pharm. Bull.* **31** (5), 908-915 (2008)



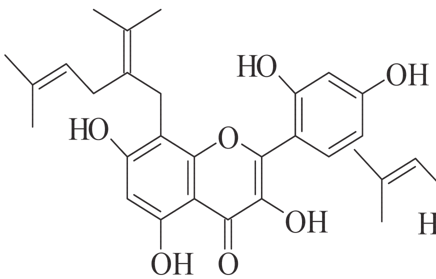
leachianone G (**1**)



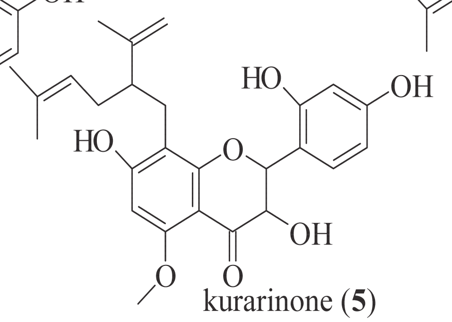
kushenol E (**2**)



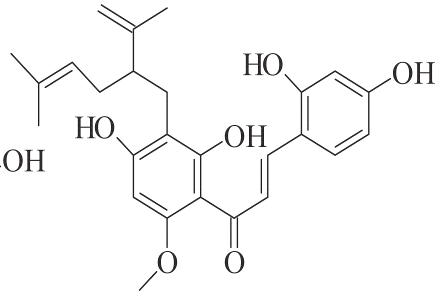
sophoraflavone G (**3**)



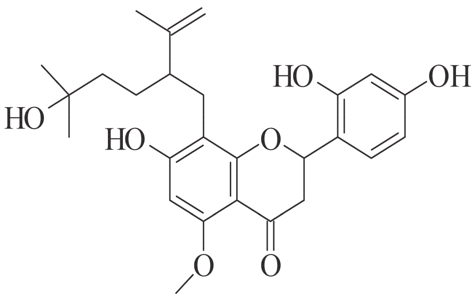
kushenol C (**4**)



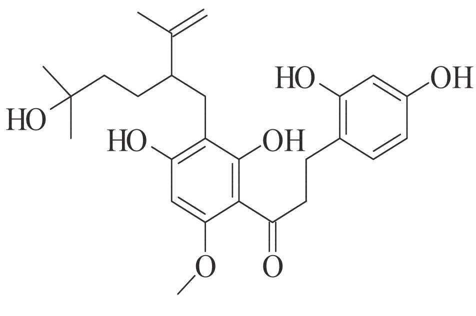
kurarinone (**5**)



kuraridin (**6**)



kurarinol (**7**)



kuraridinol (**8**)

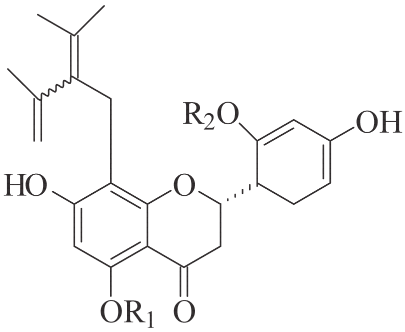
Fig. 1. Structures of Prenylated Flavonoids **1**--**8** from *Sophora flavescens*

052-6. 苦參 Sophorae Radix

* *Sophora flavescens* Aiton [Leguminosae

** Lavandulyl Flavanones

*** Gil-Saeng Jeong, Bin Li, Dong-Sung Lee, Erisa Byun, Ren-Bo An, Hyun-Ock Pae, Hun-Taeg Chung, Kwon-Ha Youn, and Youn-Chul Kim: *Biol. Pharm. Bull.* **31** (10), 1964-1967 (2008)



1: $R_1=R_2=CH_3$
2: $R_1=R_2=H$
3: $R_1=H$, $R_2=CH_3$
4: $R_1=OH$, $R_2=H$

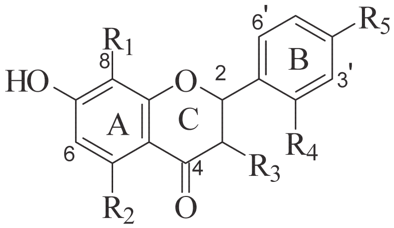
Fig. 1. The Structures of Compounds **1**--**4**

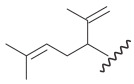
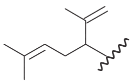
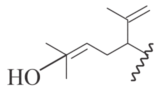
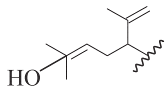
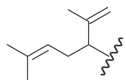
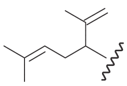
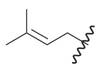
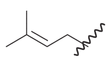
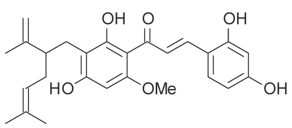
* **1**: (2*S*)-2'-methoxykurarinone
2: sophoraflavanone G
3: leachianone A
4: (-)-kurarinone

052-7. 苦参 Sophorae Radix

* *Sophora flavescens* Ait. [Leguminose]

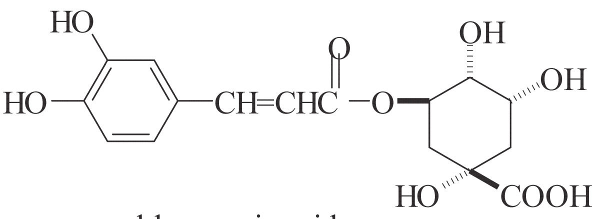
* Tac-Sook Jeong, Young Bae Ryu, Hoi Young Kim, Marcus John Curtis-Long, So Jin An, Hin Hwan Lee, Woo Song Lee, and Ki Hun Park: *Biol. Pharm. Bull.* **31** (11), 2097-2102 (2008)



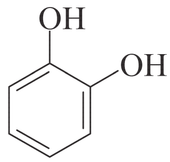
Compound	R_1	R_2	R_3	R_4	R_5
1. sophoraflavanone G		OH	H	OH	OH
2. kurarinone		OMe	H	OH	OH
3. kurarinol		OMe	H	OH	OH
4. norkurarinol		OH	H	OH	OH
5. kushenol A		OH	H	OH	H
6. (2*S*)-2'-methoxykurarinone		OMe	H	OMe	OH
7. isoxanthohumol		OMe	H	H	OH
8. 3,7,4'-trihydroxy-5-methoxy-8-prenyl-flavanone		OMe	OH	H	OH
9. kuraridin		—	—	—	—

053-1. 杜仲 Eucommiae Cortex

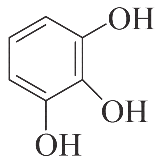
* *Eucommia ulmoides* Oliv. [Eucommiaceae]



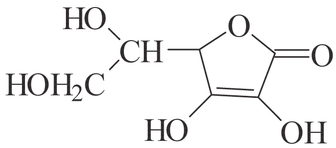
chlorogenic acid



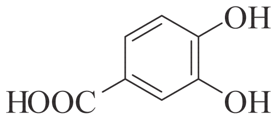
catechol



pyrogallol



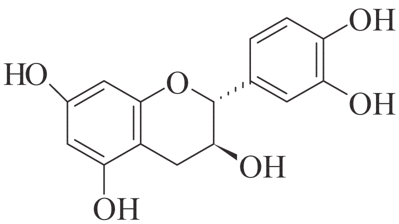
vitamin C (ascorbic acid)



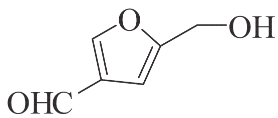
protocatechuic acid

CH_3-CH_2-COOH

propionic acid



(+)-catechin



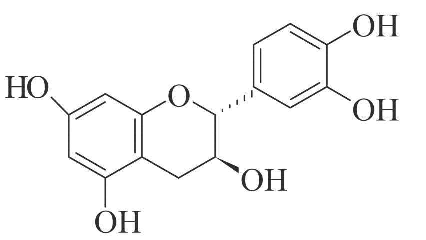
5-hydroxymethyl-2-furaldehyde (HMF)

Fig. 1. Chemical structures of compounds

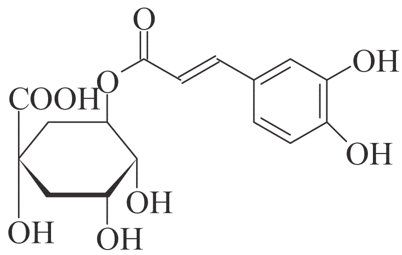
053-2-1. 杜仲葉 Eucommiae Folium

* *Eucommia ulmoides* Oliver [Eucommiaceae]

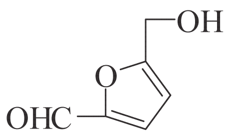
** Eriko Matsuda, Yuko Yoshizawa, Yuki Yokosawa, Naomi Watanabe, Satoru Kawaii, Noboru Murofushi:
J Nat Med, **60** (2), 126-129 (2007)



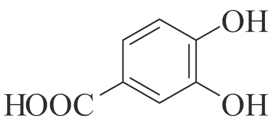
(+)-catechin



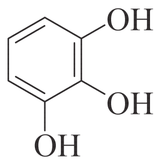
chlorogenic acid



5-hydroxymethyl-2-furaldehyde (HMF)



protocatechuic acid



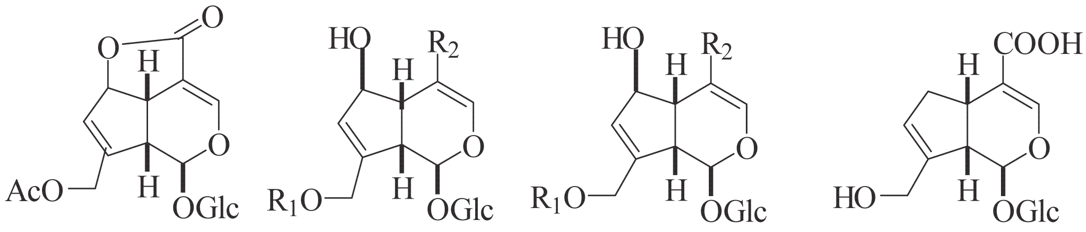
pyrogallol

Fig. 1. Chemical structures of compounds

053-2-2. 杜仲葉 Eucommiae Folium

* *Eucommia ulmoides* Oliv. [Eucommiaceae]

** Chika Takamura, Tetsuya Hirata, Yasuyo Yamaguchi, Masateru Ono, Hiroyuki Miyashita, Tsuyoshi Ikeda, Toshihiro Nohara; *J Nat Med,* **61** (2), 220-221 (2007)

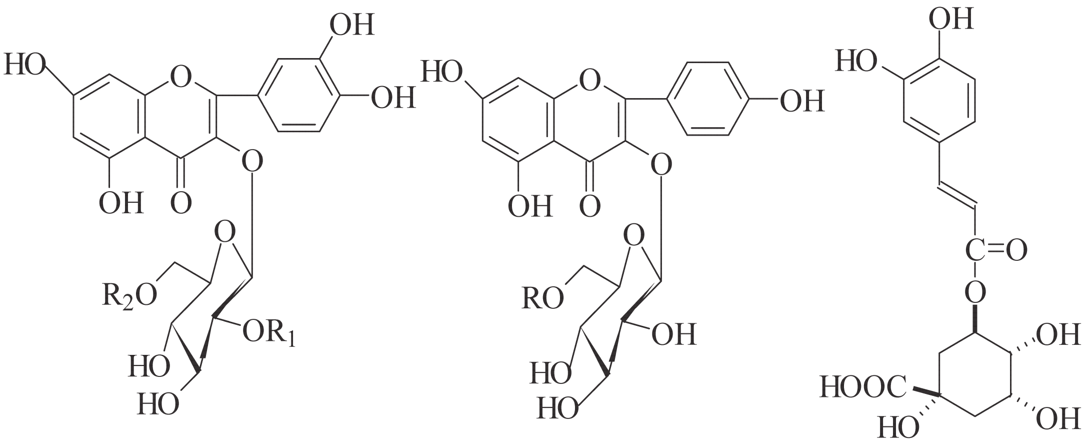


1

	R_1	R_2
2	Ac	COOH
	H	H

	R_1	R_2
3	Ac	COOH
6	H	H

5



	R_1	R_2
7	H	H
8	Xyl	H
9	H	Rha

	R
10	H
11	Rha

12

Fig. 1. Chemical structures of compounds **1--12**

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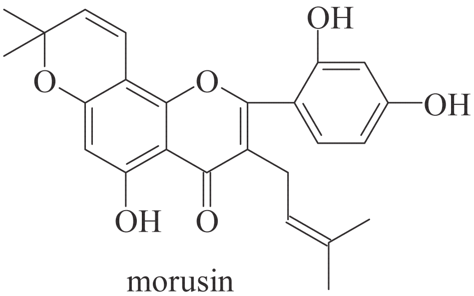
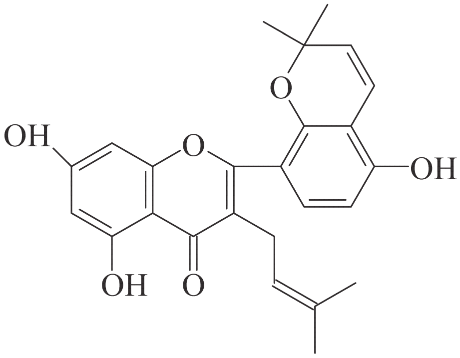
* **1**.asperuloside, **2**.asperulosidic acid, **3**. scandoside 10-***O***-acetate, **4**. deacetyl asperulosidic acid, **5**. geniposidic acid, **6**. aucubin, **7**. isoquercetin, **8**. quercetin 3-***O***-sambubioside, **9**. rutin, **10**. astragalin, **11**. kaempherol 3-***O***-rutinoside, **12**. chlorogenic acid.

054-1-1. 桑白皮 Mori Radicis Cortex

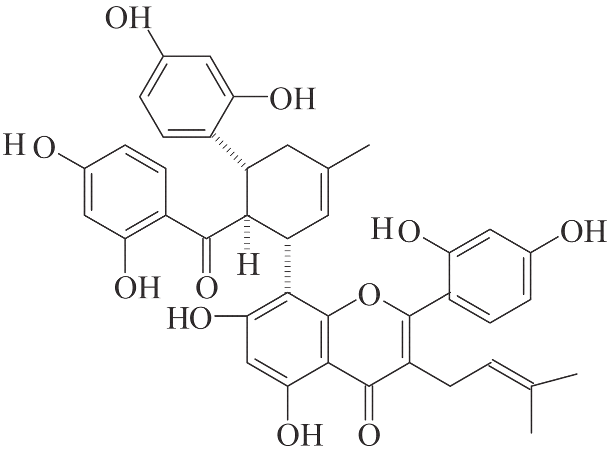
**Morus alba* Linn'e
M. *bombycis* Koidzumi [Moraceae]



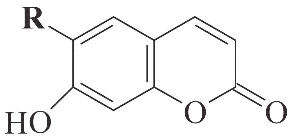
morusin



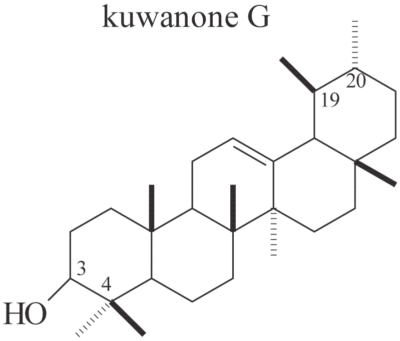
kuwanone A



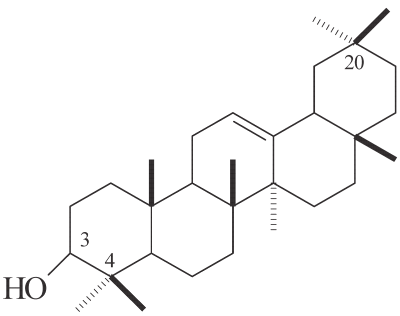
kuwanone G



umbelliferone : R=H
scopoletin : R=OCH_3



α−amyrin

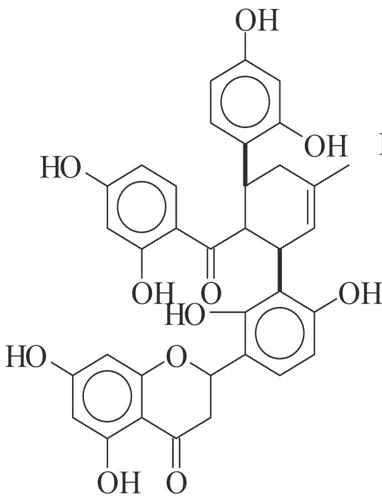


β−amyrin

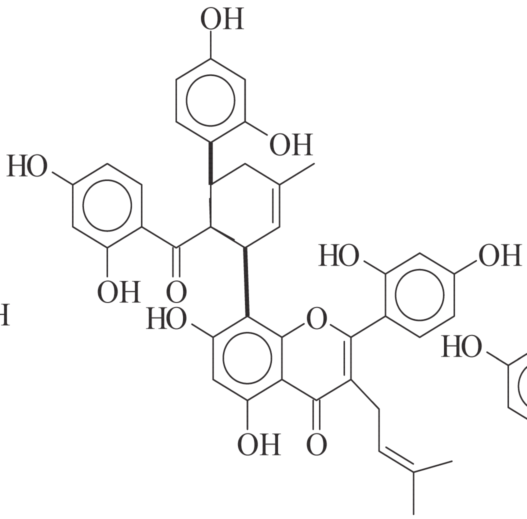
054–1–2–1. 桑白皮 Mori Radicis Cortex (Mulberry Bark)

* *Morus alba* Linn'e [Moraceae]

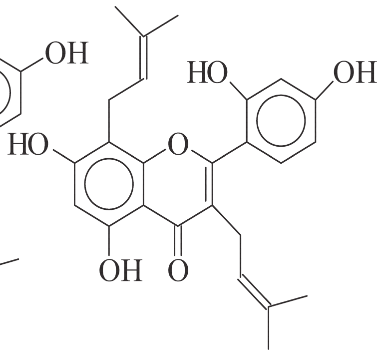
** S. Nunome, M. Okada, Y. Hano, T. Fukai, T. Nomura, H. Mitsuhashi : *Natural Medicines,* **48** (1), 71-74 (1994)



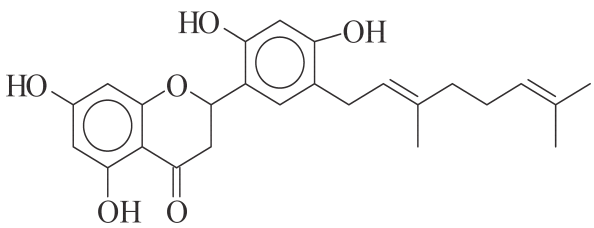
kuwanone L



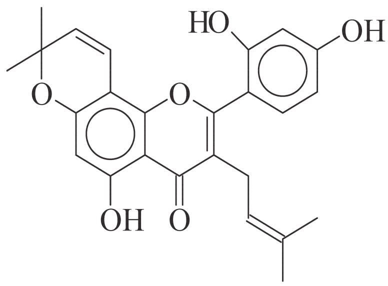
kuwanone G



kuwanone C



kuwanone E

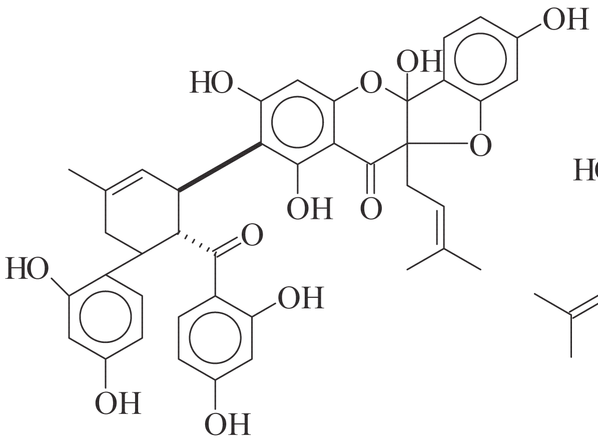


morusin

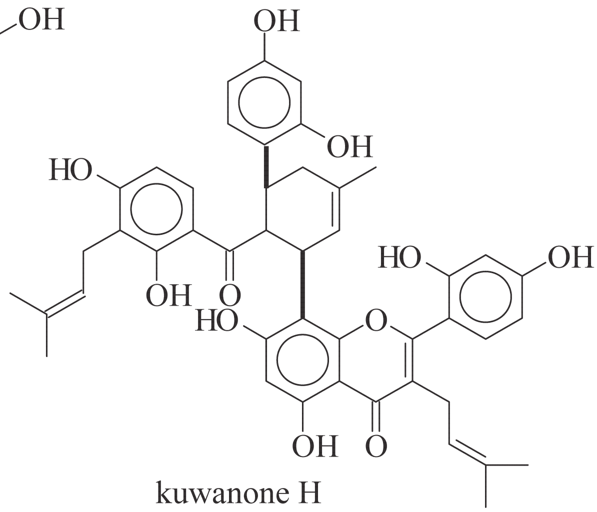
054-1-2-2. 桑白皮 Mori Radicis Cortex (Mulberry Bark)

**Morus alba* Linn'e [Moraceae]

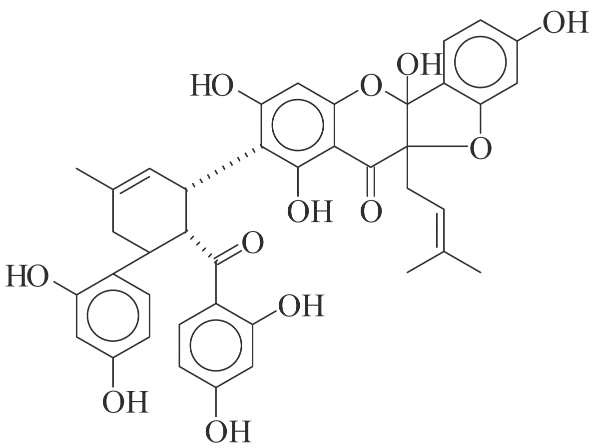
* * N. Nunome et al.: *Natural Medicines,* **48** (1), 71-74 (1994)



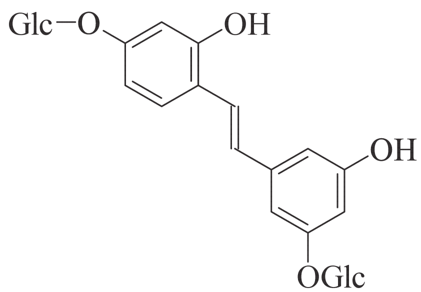
sanggenon D1



kuwanone H



sanggenon C



*mulberroside A (MA)

Fig. 1. Chemical structures of compounds

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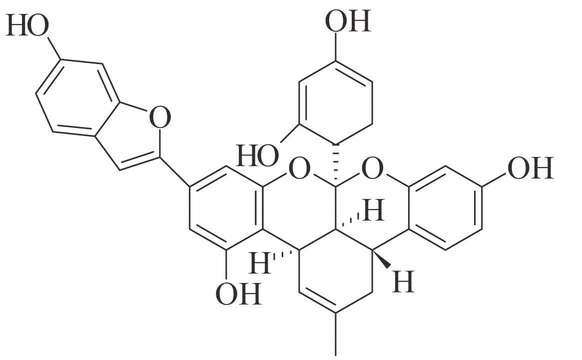
*[S. Nunome, K. Kondo, S. Terabayashi, H. Sasaki, Cheng Xiao, X. Hao, *Natural Medicines,* **54**(1), 33-37 (2000)]

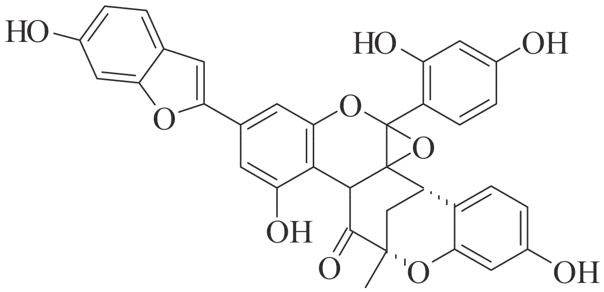
054-1-3. 桑白皮 Mori Radicis Cortex

* *Morus alba* L. [Moraceae]

** Takashi Kikuchi, Masatoshi Nihei, Hisashi Nagai, Hidekuni Fukushi, Keiichi Tabata, Takashi Suzuki, and Toshihiro Akihisa:
Chem. Pharm. Bull. **58** (4) 568-571 (2010)



Albanol A (**1**)

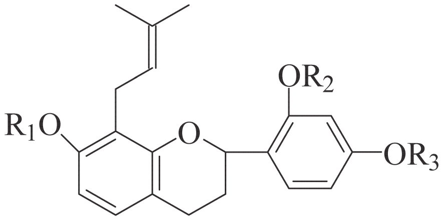


Mulberrofurane Q (**2**)

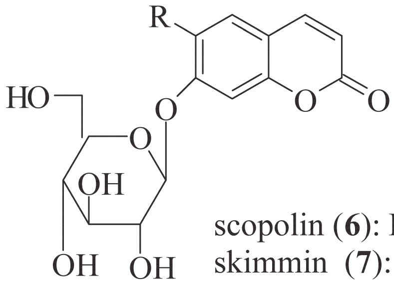
Fig. 1. Chemical Structures of Albanol A (**1**) and Mulberrofurane Q (**2**)

054-2-1. 桑葉 Leaves of *Morus alba* L.[Moraceae]

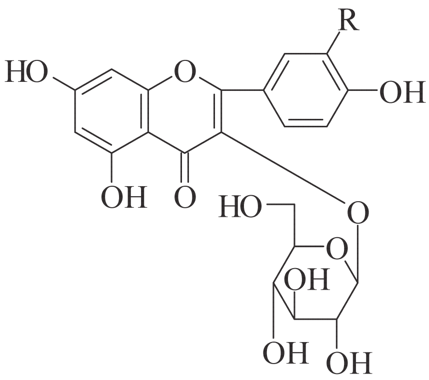
* Doi K, Kojima T, Makino M, kimura Y, Fujimota Y:
Chem. Pharm. Bull., **49** (2), 151-153 (2001)



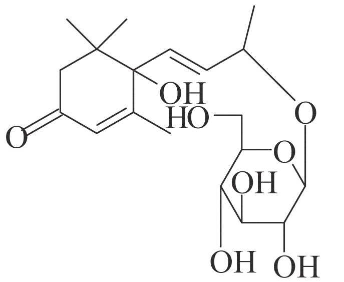
(**1**): R_1=R_2=H, R_3=CH_3
(**2**): R_1=CH_3, R_2=R_3=H
(**3**): R_1=R_2=Glc, R_3=CH_3
* prenylflavans (**1**,**2**) and glycoside (**3**)



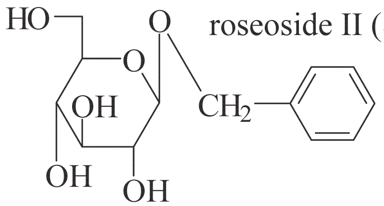
scopolin (**6**): R=OCH_3
skimmin (**7**): R=H



isoquercitrin (**4**): R=OH
astragalin (**5**): R=H



roseoside II (**8**)



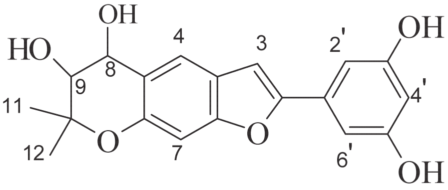
benzyl-D-glucopyranoside (**9**)

Fig. 1. Chemical structures of compounds **1--9**

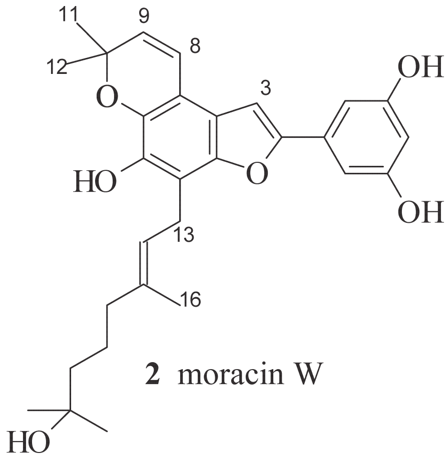
054-2-2. 桑葉 Leaves of *Morus alba* L.[Moraceae]

* Yan Yang, Ting Gone, Chao Liu, and Ruo-Yun Chen:
Chem. Pharm. Bull. **58**(2) 257-260 (2010)

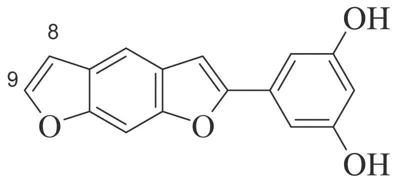
** 2-Arylbenzofuran Derivatives



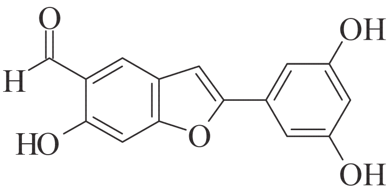
1 moracin V



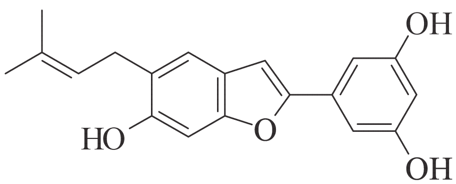
2 moracin W



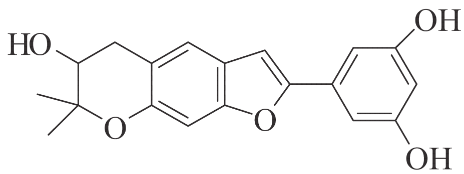
3 moracin X



4 moracin Y



5 moracin N

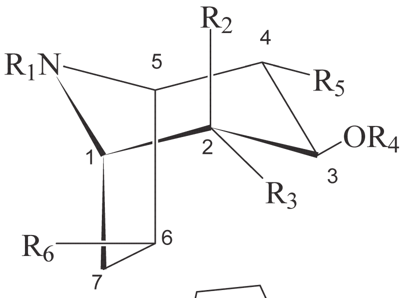


6 moracin P

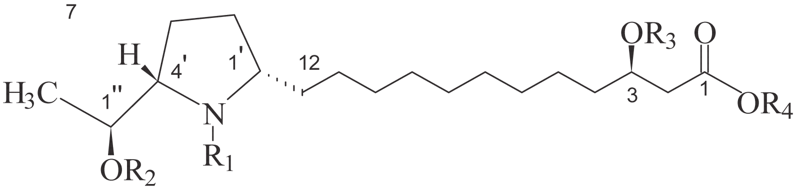
Fig. 1. Structures of Compounds **1--6**

054-3-1. 桑實 Fruit of *Morus alba* L.[Moraceae]

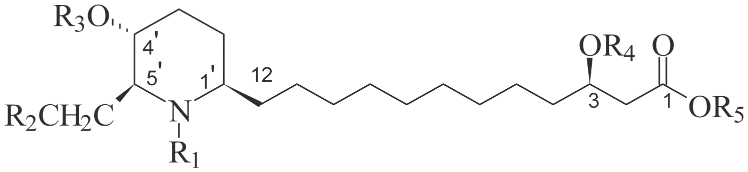
*Kusano G, Orihara S, Tsukamoto D, Shibano M, Coskun M, Guvenc A, Erdurae C-S: *Chem. Pharm.Bull.* **50**(2), 185-192 (2002)



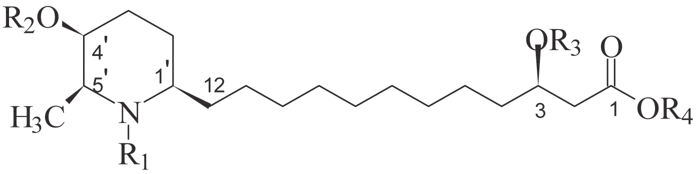
* **1**: $R_1=R_2=H, R_3=OH, R_4=R_5=R_6=H$
2: $R_1=H, R_2=OH, R_3=R_4=R_5=R_6=H$
3: $R_1=R_2=H, R_3=OH, R_4=R_5=H, R_6=OH$
4: $R_1=R_2=H, R_3=OH, R_4=H, R_5=OH, R_6=H$
5: $R_1=R_2=R_3=R_4=R_5=H, R_6=OH$
6: $R_1=R_2=R_3=R_4=R_5=R_6=H$



7: morusimic acid A: $R_1=R_2=H, R_3=Glc, R_4=H$
8: morusimic acid B: $R_1=R_2=R_3=R_4=H$



9 : morusimic acid C: $R_1=R_2=R_3=H, R_4=Glc, R_5=H$
10: morusimic acid D: $R_1=R_2=R_3=R_4=R_5=H$
11: morusimic acid E: $R_1=H, R_2=OH, R_3=H, R_4=Glc, R_5=H$



12: morusimic acid F: $R_1=R_2=R_3=R_4=H$

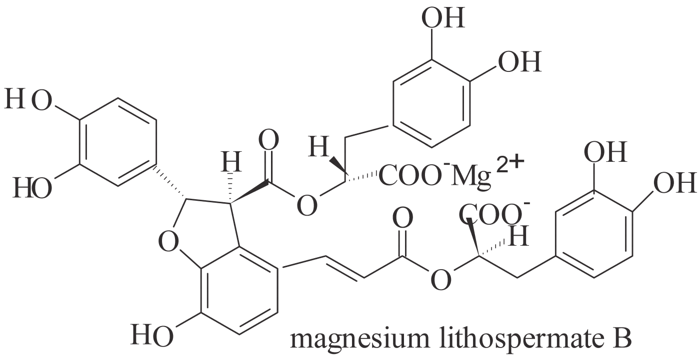
Fig. 1. Chemical structures of compounds **1--12**

---

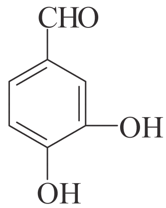
* **1**: 2α,3β−dihydroxynortropane; **2**: 2β,3β-dihydroxynortropane;
3: 2α,3β,6 exo-trihydroxynortropane ; **4**: 2α,3β,4α-trihydroxynortropane;
5: 3β,6 exo-dihydroxynortropane; **6**: nor-ψ−tropine.
7: (3*R*)-3-hydroxy-12-{(1*S*,4*S*)-[(1*S*)-1-hydroxymethyl]-pyrrodidin-1-yl}-dodecanoic acid-3-***O***-β−ᴅ-glucopyranoside=morusimic acid A.

055-1. 丹參 Salviae Miltiorrhizae Radix

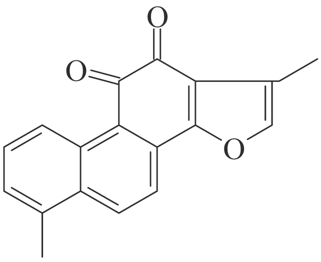
* *Salvia miltiorrhiza* Bunge [Labiatae]



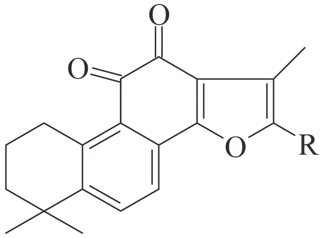
magnesium lithospermate B



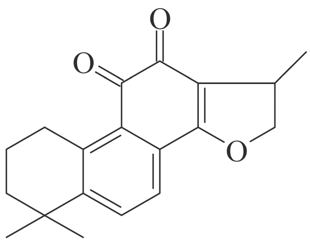
protocatechualdehyde



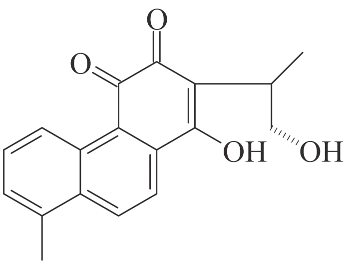
tanshinone I



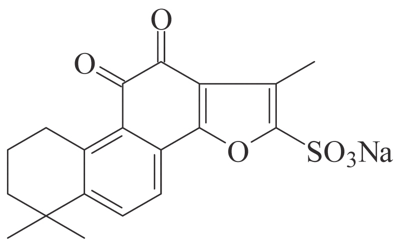
tanshinone II$^-$A, R=H
sodiumtanshinone II$^-$A,
R=SO_3Na



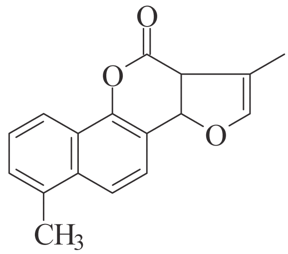
cryptotanshoinone



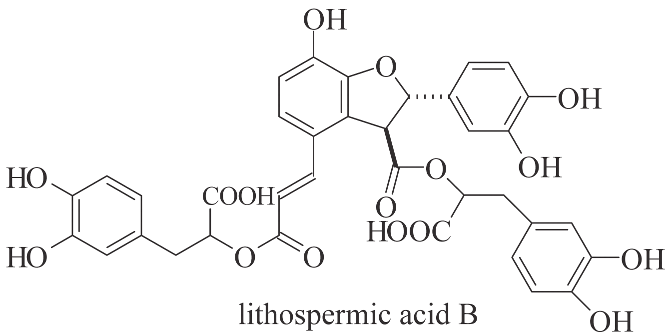
tanshinone VI



danshen - 201



neo-tanshinlactone



lithospermic acid B

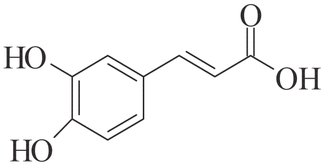
Fig. 1. Chemical structures of compounds

055-2-1. 丹參 Salviae Miltiorrhizae Radix

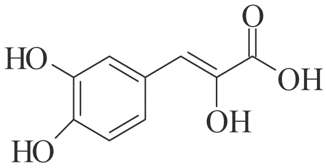
**Salvia miltiorrhiza* Bunge [Labiatae]

**Detection of Polyphenols and Tanshinones in Commercial Danshen by Liquid Chromatography with UV and Mass Spectrometry,

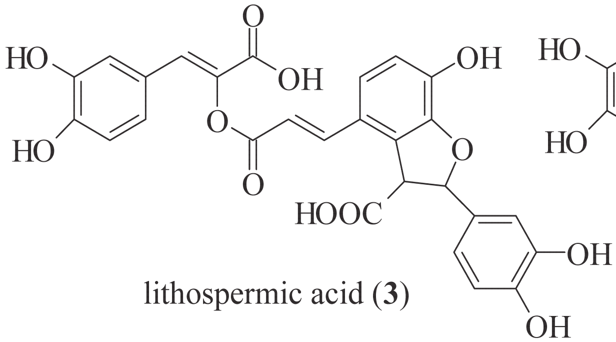
***Ming-Jaw Don, Han-Chieh Ko, Cheng-wei Yang, and Yun-Lian Lin, *Journal of Food and Drug Analysis,* **14**(3), 254-259 (2006)



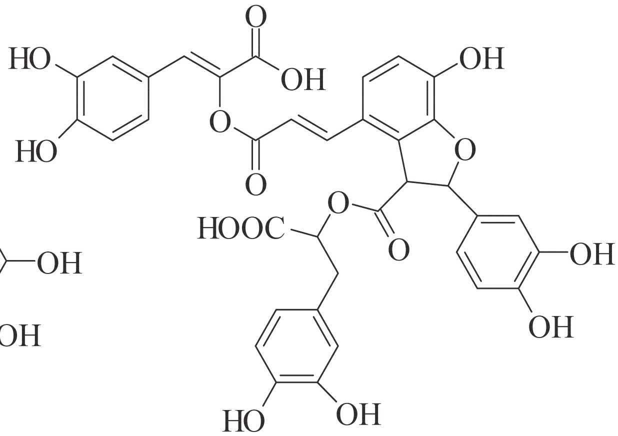
caffeic acid (**1**)



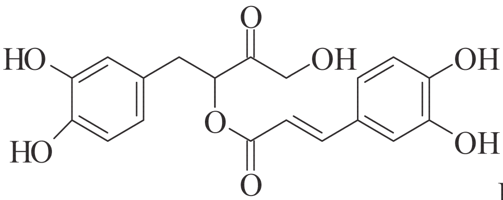
danshensu (**2**)



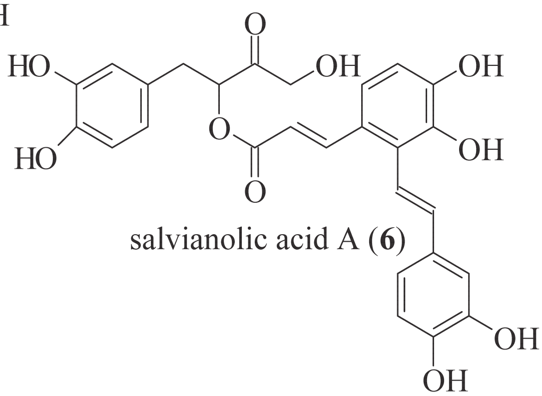
lithospermic acid (**3**)



salvianolic acid B (**5**)



rosmarinic acid (**4**)



salvianolic acid A (**6**)

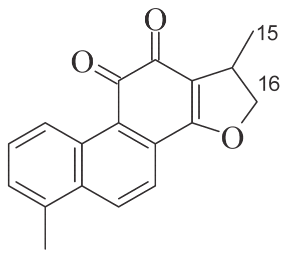
Fig. 1. Polyphenolic Components from *Salvia miltiorrhiza*

055-2-2. 丹參 Salviae Miltiorrhizae Radix

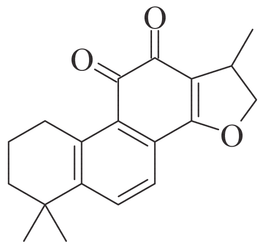
Salvia miltiorrhiza Bunge [Labiatae]

**Continued from 055-2-1

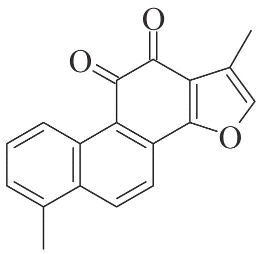
*** Four major abietane-type diterpenes



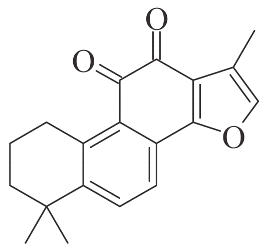
15,16-dihydrotanshinone (**7**)



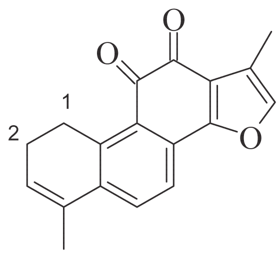
cryptotanshinone (**8**)



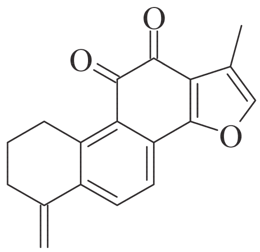
tanshinone I (**9**)



tanshinone IIA (**10**)



1,2-dihydrotanshinone (**11**)



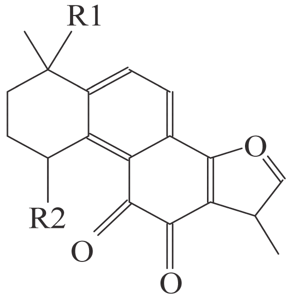
methylenetanshinquinone (**12**)

Fig. 2. The structures of Tanshinones from Commercial Danshen: *Salvia miltiorrhiza*

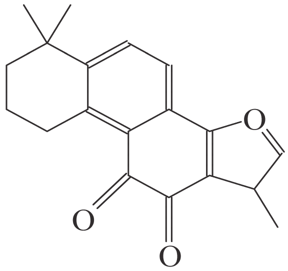
055-3-1. 丹參 Danshen (*Salvia miltiorrhiza* Bunge)[Labiatae]

*Junhui Chen, Frank Sen-Chun Lee, Lei Li, baijuan Yang, and Xiaoru

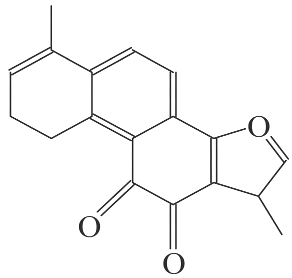
***Journal of Food and Drug Analysis,* **15**(4), 347-364 (2007)



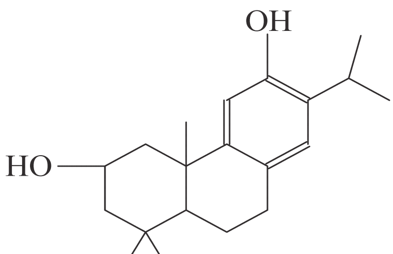
Tanshinone A: R_1=CH_3, R_2=H
Tanshinone B: R_1=CH_2OH, R_2=H
Methyhanshinonate: R_1=$COOCH_3$, R_2=H
Hydrocytanshinone A: R_1=CH_3, R_2=OH



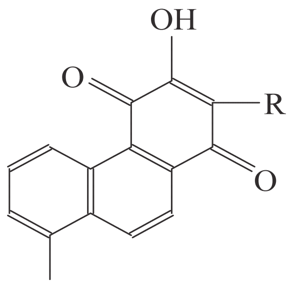
Cryptotanshinone

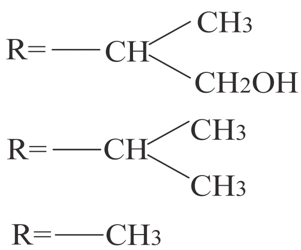


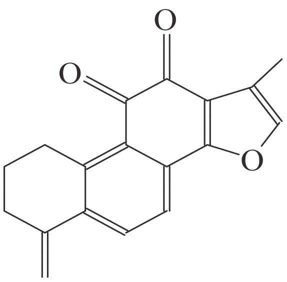
Dihydrotanshin



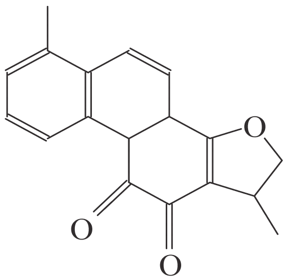
Salviol



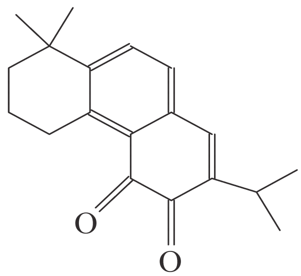




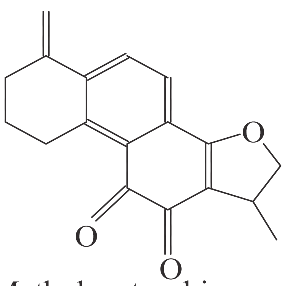
Methylenetanshinguinone



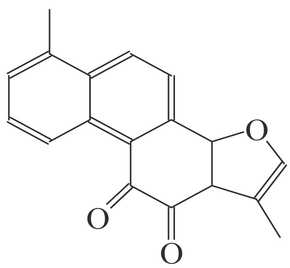
Dihydrotanshinone



Isotanshinone A



Methylenetanshinone



Tanshinone

Figure 1. Major lipid soluble active components in Danshen

055-3-2. 丹參 Danshen (*Salvia miltiorrhiza* Bunge) [Labiatae]

* Junhui Chen et al: *Journal of Food and Drug Analysis,* **15**(4), 347-364 (2007)

** Continued 055-3-1

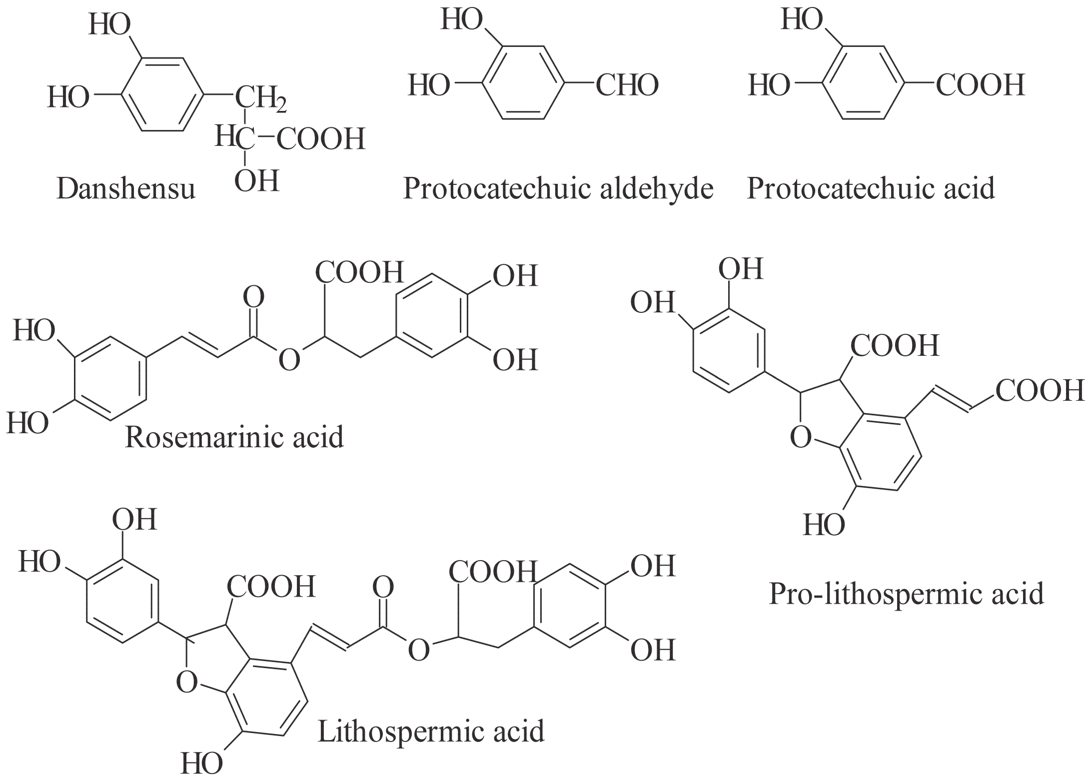
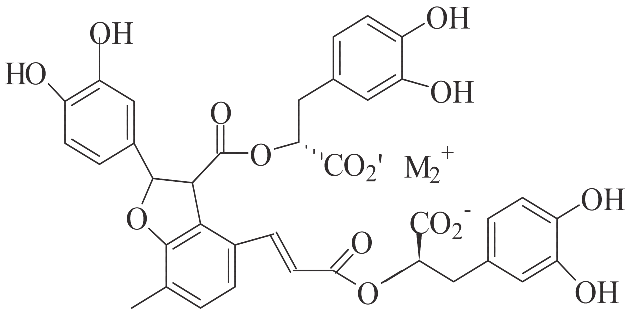


Figure 2-1. Major water soluble components in Danshen

055-3-3. 丹參 Danshen (*Salvia miltiorrhiza* Bunge) [Labiatae]

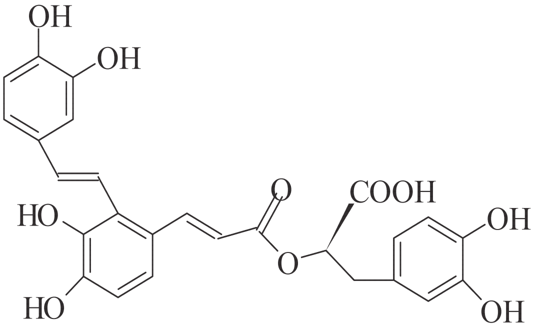
* Junhui Chen et al: *Journal of Food and Drug Analysis,* **15**(4), 347-364 (2007)

** Continued 055-3-2

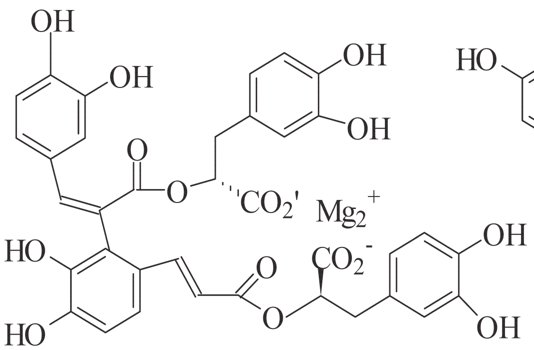


$M_2^+ = Mg_2^+$: Magnesium lithospermate

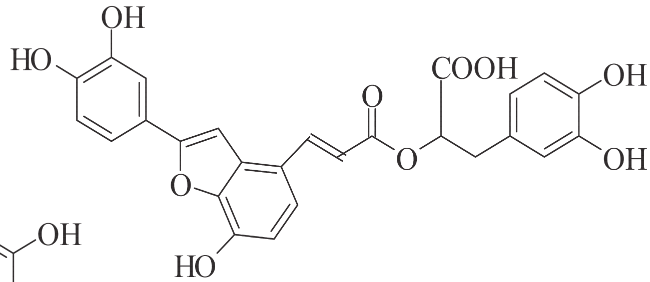
$M_2^+ = NH_4^+\ K^+$: Ammonium-potassium lithospermate



Salvianolic acid A



Magnesium salvianolate



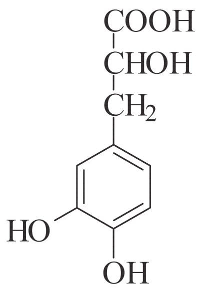
Salvianolic acid C

Figure 2-2. Major water soluble components in Danshen

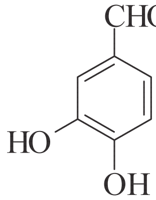
055-4-1. 丹參 Salviae Miltiorrhizae Radix

* *Salvia miltiorrhiza* Bunge [Labiatae]

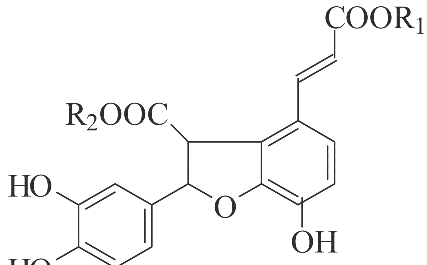
** Fan-Na Qu, Lian-Wen Qi, Ying-Jie Wen, Xiao-Dong Wen, Ling Yi, Hou-Wei Luo, and Ping Li:
Biol. Pharm. Bull. **31**(3), 501-506 (2008)



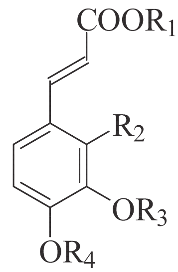
Danshensu (**1**)



Protocatechuic aldehyde (**3**)



Lithospermic acid (**6**): $R_1=R_2=X$
Salvianolic acid B (**7**): $R_1=X$, $R_2=H$



Salvianolic acid D (**4**):
$R_1=X$, $R_2=CH_2COOH$, $R_3=R_4=H$
Rosmarinic acid (**5**):
$R_1=X$, $R_2=R_3=R_4=H$

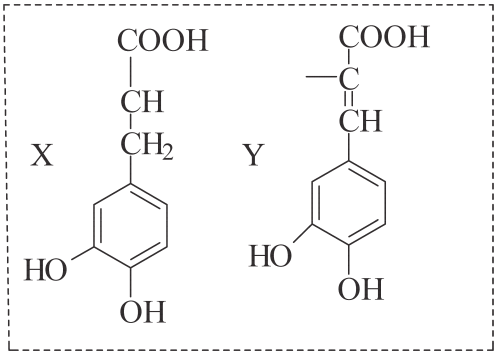
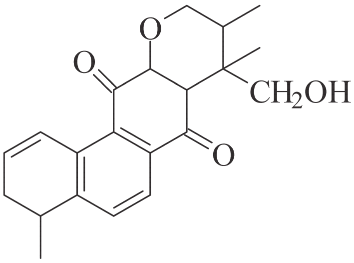


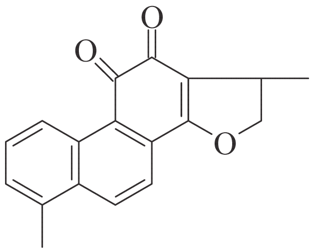
Fig. 1. Chemical Structures of Potential Bioactive Components **1--8** in RSM (Radix Salviae Miltiorrhizae)

055-4-2. 丹參 Salviae Miltiorrhizae Radix

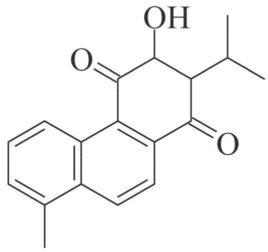
* Continued 055-4-1



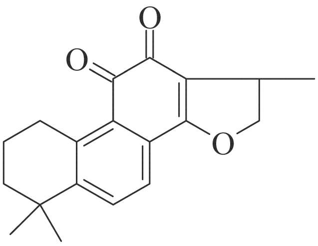
Danshexinkun D (**9**)



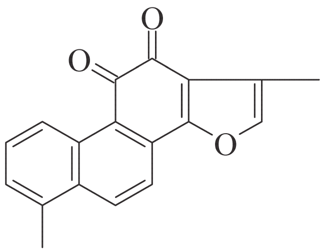
Dohydrotanshinone I (1**0**)



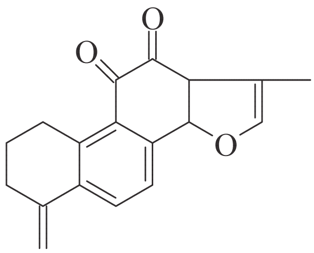
Danshexinkun B (**11**)



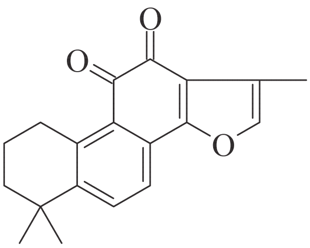
Cryptotanshinone (**12**)



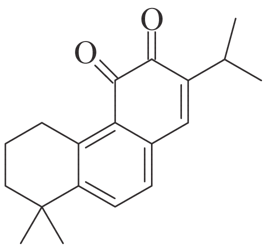
Tanshinone (**13**)



Methylene tanshiquinone (**14**)



Tanshinone IIA (**15**)



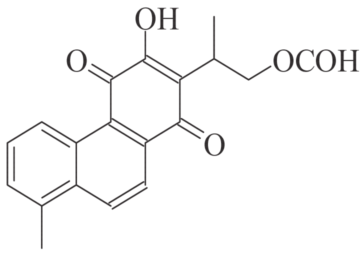
Miltirone (**16**)

Fig. 2. Chemical Structures of Potential Bioactive Components **9--16** in RSM (Radix Salviae Miltiorrhizae)

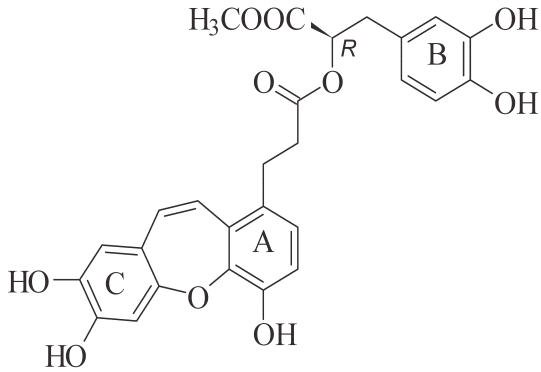
055-5. 丹參 Salviae Miltiorrhizae Radix

* Constituents with α−glucosidase and advanced glycation end-product formation inhibitory activities from *Salviae miltiorrhiza* Bge. (Dan-shen)

** Hai-Ying Ma, Hui-Yuan Gao, Lu-Sun, Jian Huang, Xiao-Min Xu, Li-Jun Wu: *J Nat Med* **65** (1) 37-42 (2011)



1



2

Fig. 1. Structures of compounds **1** and **2**

---

* The 75% ethanol extract from roots of *Salvia militiorrhiza* Bge. (Dan shen) afforded two new compounds, 3-hydroxy-2-(2'-formyloxy-1'-methylethyl)-8-methyl-1,4-phenanthrenedione (**1**), and (8'*R*)-isosalvianolic acid C methyl ester (**2**).

* 14 known compounds:isotanshinone I (**3**), isocryptotanshinone (**4**), danshenxinkun A (**5**), tanshinone IIA (**6**), dihydrotanshinone (**7**), norsalvioxide (**8**), neo-prezwaquinone A (**9**), salvianic acid A methyl ester (**10**), rosmarinic acid (**11**), methyl rosmarinate (**12**), salvianolic acid A methyl ester (**13**), salvianolic acid C (**14**), salvianolic acid C methyl ester (**15**), and lithospermic acid dimethyl ester (**16**).

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* The ability of the compounds to inhibit α−glucosidase activity and formation of advanced glycation end-product (AGEs) was evaluated . All compounds various degreesof inhibitory effects against α−glucosidase; moreover , compounds **2, 6, 11, 14** and **16** exhibited much more potent inhibition against AGEs than the positive control (aminoguanidine, AG, IC_{50} 0.11 μM).

055-6. 丹参 Salviae Miltiorrhizae Radix (1)

* Two New Diterpenoids from Cell Cultures of *Salvia miltiorrhiza*

** De-Wu Zhang, Xiao Liu, Dan Xie, Ridao Chen, Xiao-Yu Tao, Jian-Hua Zou, and Jungui Dai: *Chem. Pharm. bull.* **61**(5) 576-580 (2013)

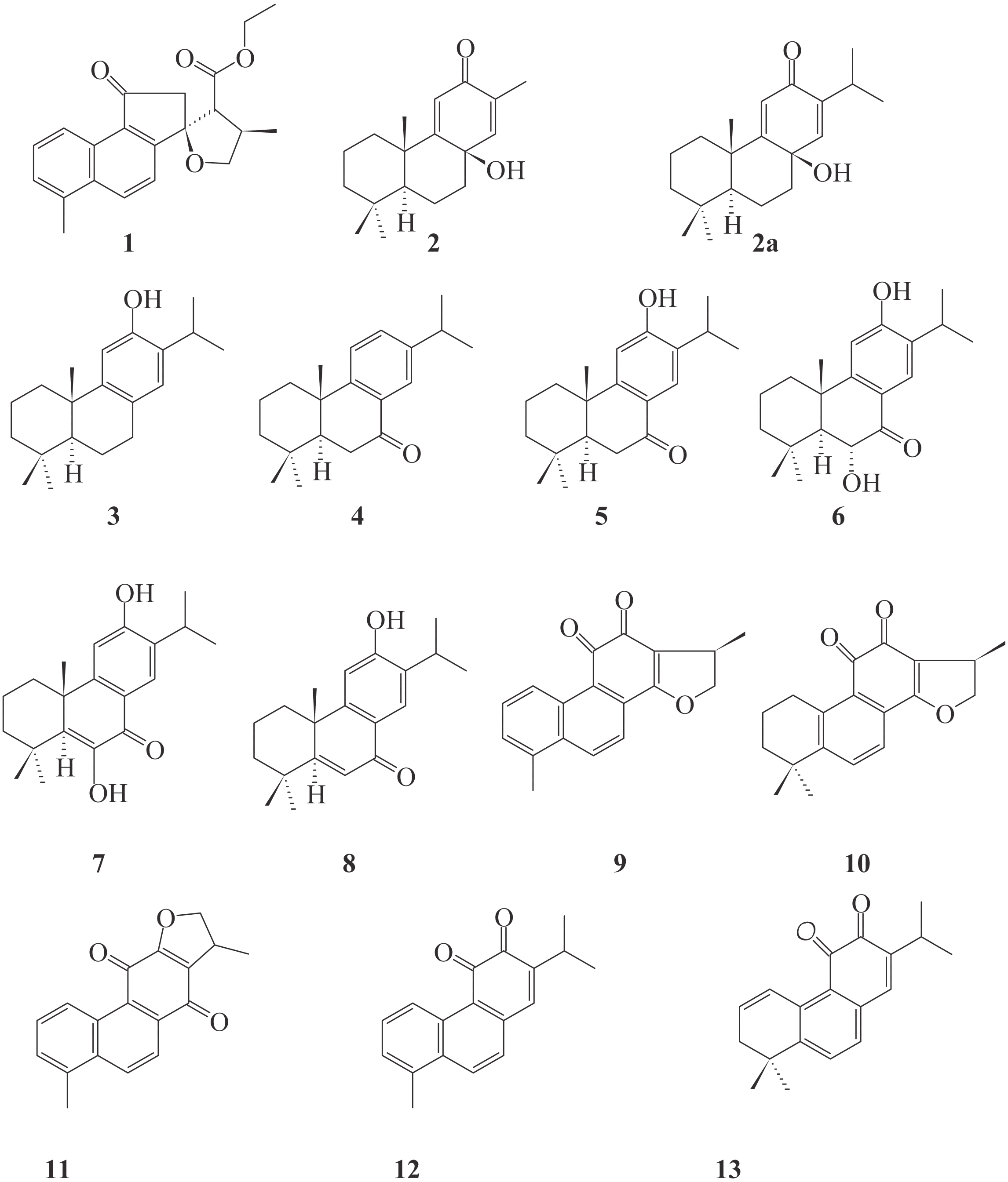
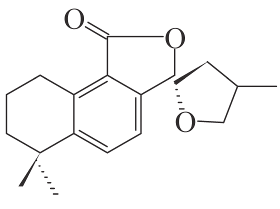


Fig. 1-1. The Structures of Compounds **1-13**

055-6. 丹參 Salviae Miltiorrhizae Radix (2)

* Two New Diterpenoids from Cell Cultures of *Salvia miltiorrhiza*

** De-Wu Zhang, Xiao Liu, Dan Xie, Ridao Chen, Xiao-Yu Tao, Jian-Hua Zou, and Jungui Dai: *Chem. Pharm. bull.* **61** (5) 576-580 (2013)



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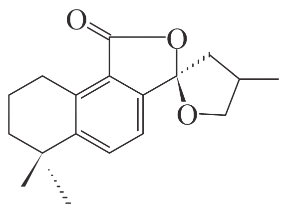

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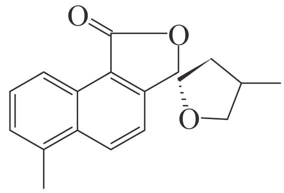

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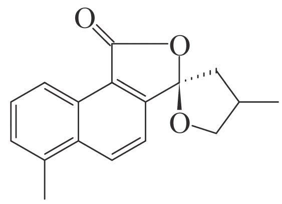

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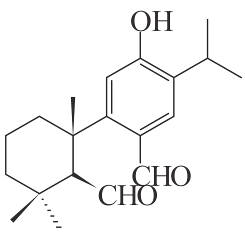

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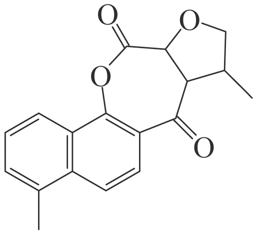

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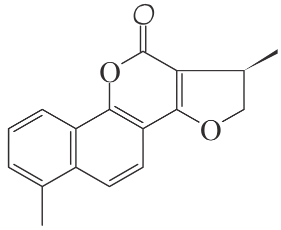

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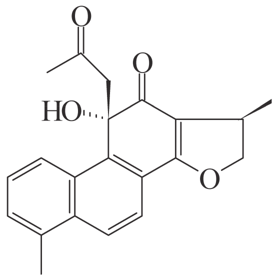

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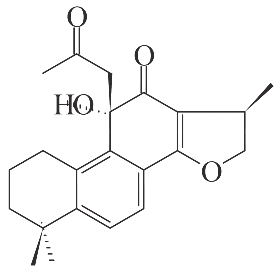

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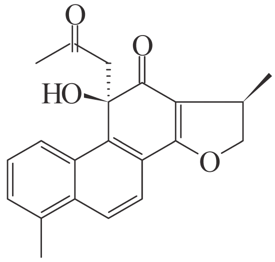

23

Fig. 1-2. The Structures of Compounds **14-23**

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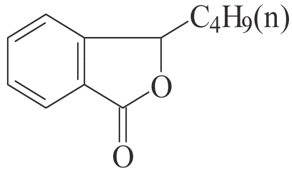
* A new spiroketallactone, *epi*-danshenspiroketallactone A (**1**) and a new C18-norditerpenoid, normiltioane (**2**) along with 21 known compounds, were isolated from cell cultures of *Salvia miltiorrhixa.* Their structures were elucidated on the basis of extensive spectro-analysis.

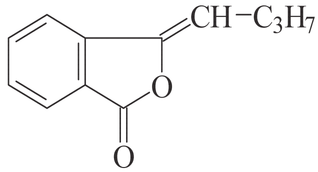
** Known compounds: ferruginol (**3**), 7-dehydroabietanone (**4**), sugiol (**5**), 6α–hydroxysugiol (**6**), 6,12-dihydroxyabieta-5,8,11,13-tetraen-7-one (**7**), 5,6-dehydrosugiol (**8**), dihydro-tanshinoneI (**9**), cryptotanshinone (**10**), dihydroisotanshinone I (**11**),2-isopropyl-8-methyl phenan-3,4-dione (**12**), dehydromiltirone (**13**), cryptoacetalide (**14**), epicryptoacetalide (**15**), danshenspiroketallactone (**16**), *epi*-danshenspiroketallactone (**17**), 12-hydroxy-6,7-secoabieta--8,11,13-triene-6,7-dial (**18**), tanshinketolactone (**19**), dihydroneotanshinlactone (**20**), danshenol A (**21**), danshenol B (**22**), and fanshenol C (**23**),

---

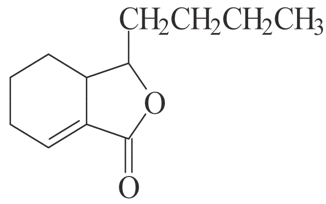
056-1. 川芎 Cnidii Rhizoma (Japan) *Cnidium officinale* Makino
Ligustici Rhizoma (China) *Ligusticum chuanxiong* Hort [Umbelliferae]



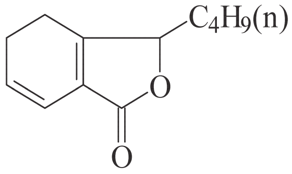
butylphthalide



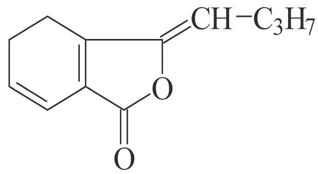
butylidenephthalide



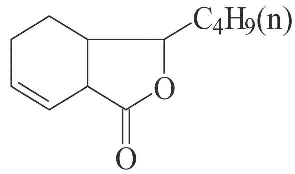
neocnidilide



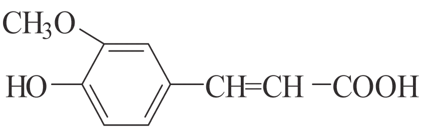
senkyunolide



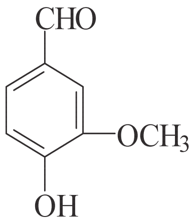
ligustilide



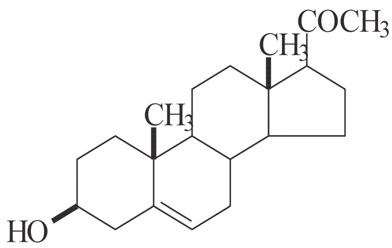
cnidilide



ferulic acid



vanillin



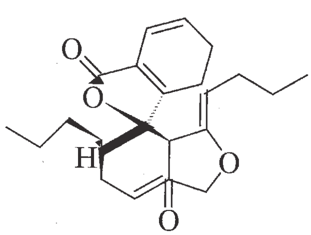
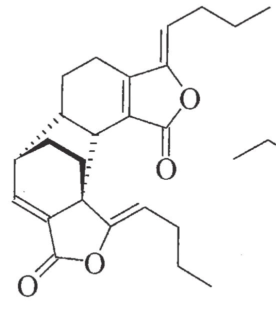
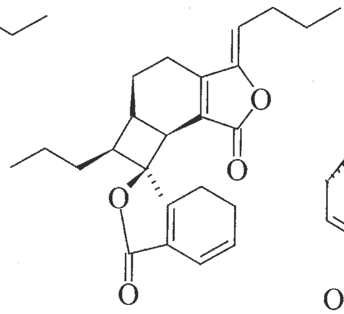
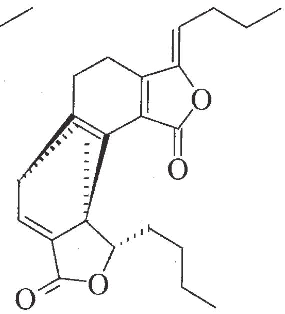
pregenenolone

Fig. 1. Chemical structures of compounds

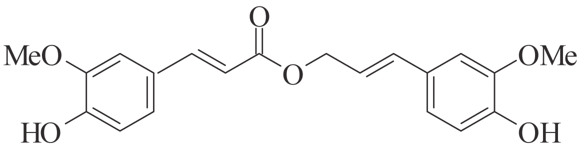
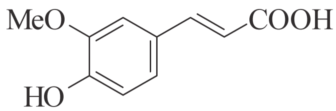
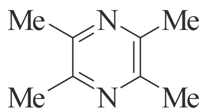
056–2. 川芎 Ligustici Chuanxiong Rhizoma

* *Ligusticum chuanxiong* Hort. [Umbelliferae]

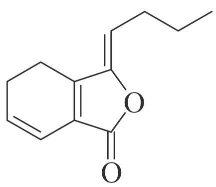
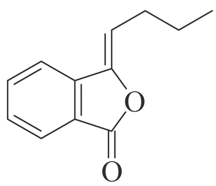
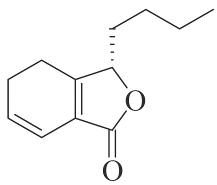
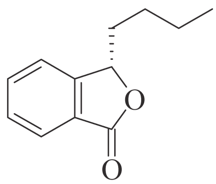
** T. Naito, K. Kubota, Y. Shimoda, T. Sato, Y. Ikeya, M. Okada, M. Maruno: *Natural Medicines,* **49** (3), 288-292 (1995)

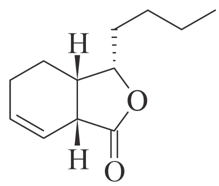
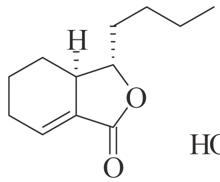
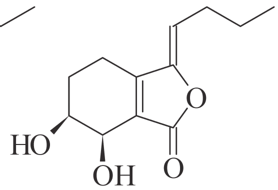
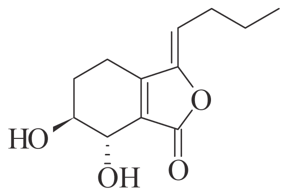
tokinolide B (**1**) levistolide A (**2**) riligustilide (**3**) senkyunolide P (**4**)

coniferyl ferulate (**5**) ferulic acid (**6**) tetramethylpyrazine (**15**)

ligustilide (**7**) butylidenephthalide (**8**) senkyunolide (**9**) butylphthalide (**10**)

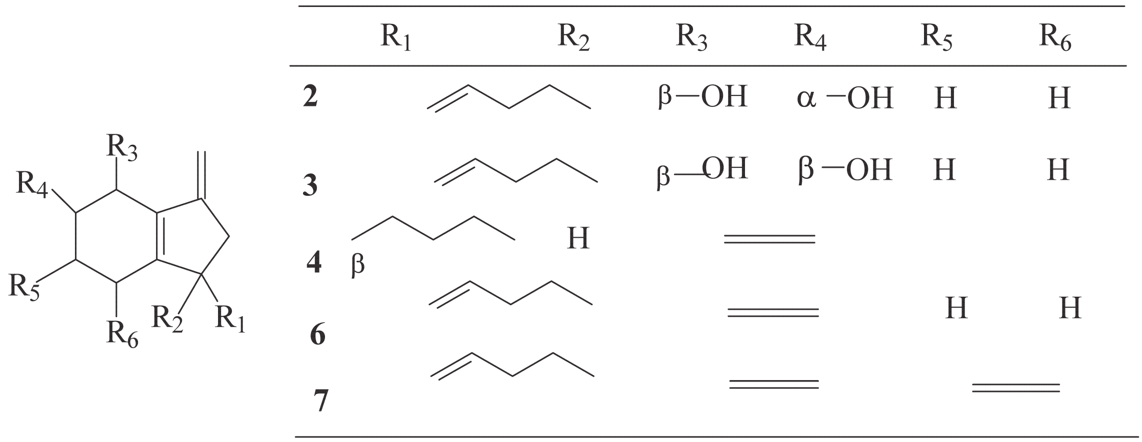
cnidilide (**11**) neocnidilide (**12**) senkyunolide H (**13**) senkyunolide I (**14**)

Fig. I. Structures of Main Constituents in Ligustici Chuanxiong Rhizoma

056-3. 川芎 Ligustici Chuanxiong Rhizoma

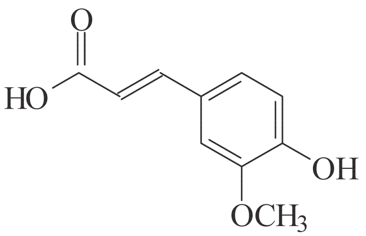
* Post-Harvest Alteration of the Main Chemical Ingredients in *Ligusticum chuanxiong* Hort. [Umbelliferae]

** Song-Lin Li, Ru Yan, Yun-Kau Tam, and Ge Lin: *Chem. Pharm. Bull.* **55** (1), 140-144 (2007)

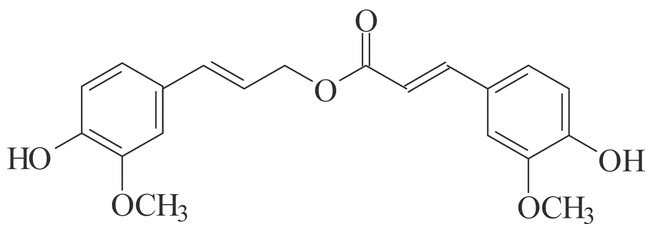


* **2**. senkyunolide I ; **3**. senkyunolide H; **4**. senkyunolide A; **6**. *Z*-ligustilide; **7**. 3-butylidenphthalide.

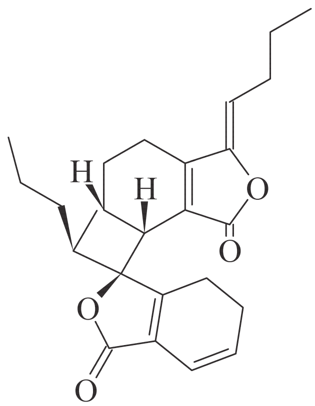
** Phthalides: post-harvest chemical alterration



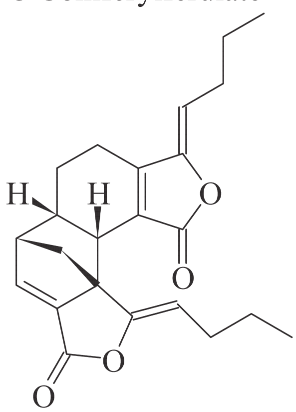
1 Ferulic acid



5 Coniferylferulate



8 Riligutilide



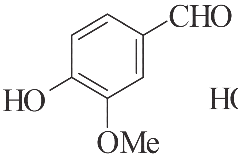
9 Levistolide A

Fig. 1. Chemical structures of compounds **1**--**9**

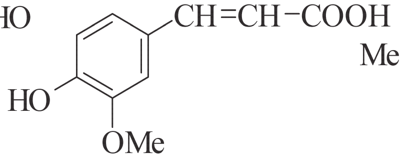
056-4. 川芎 Ligustici Chuanxiong Rhizoma

* *Ligusticum chuanxiong* Hort. [Umbelliferae]

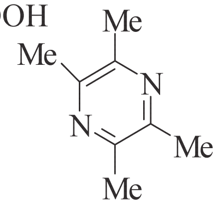
** Sunny Sun-Kin Chan, Song-Lin Li, and Ge Lin: *Journal of Food and Drug Analysis,* **15**(4), 365-371 (2007)



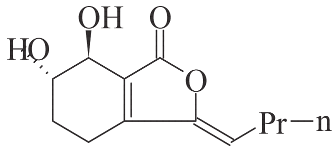
Vanillin (**1**)



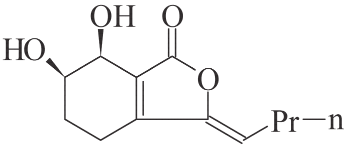
Ferulic acid (**2**)



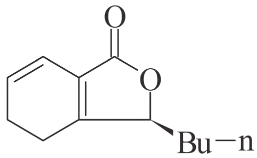
Tetramethylpyrazine (**3**)



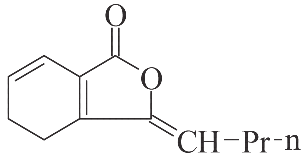
denkyunolide I (**4**)



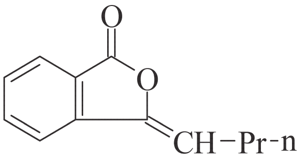
Senkyunolide H (**5**)



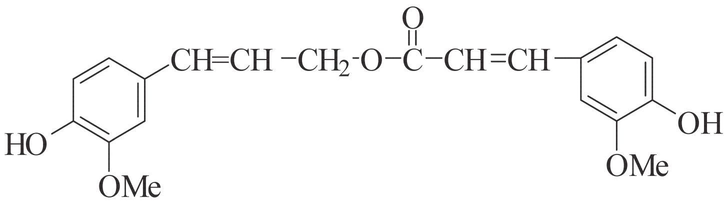
Senkyunolide A (**6**)



Z-ligustilide (**8**)



3-butylidenephthalide (**9**)

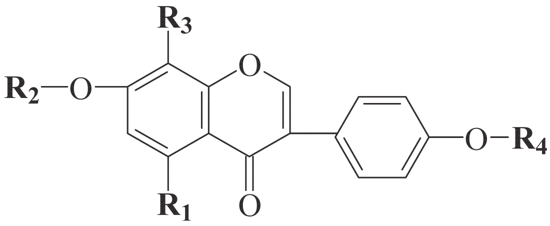


Conifenylferulate (**7**)

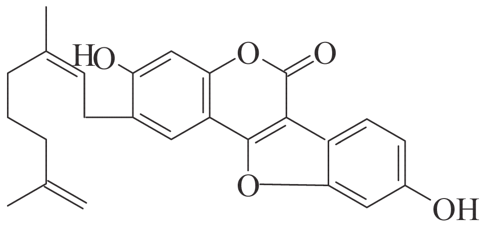
Fig. 1. Chemical structures of some compounds from Ligustici Chuanxiong Rhizoma

057-1. 葛根 Puerariae Radix

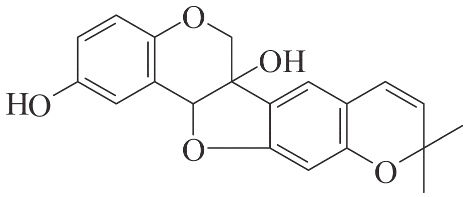
* *Pueraria lobata* Ohwi [Leguminosae]



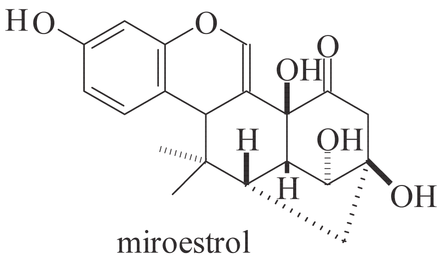
	R_1	R_2	R_3	R_4
daidzein	H	H	H	H
daidzin	H	Glc	H	H
puerarin	H	H	Glc	H
genistein	OH	H	H	H
formononetin	OH	H	H	CH_3



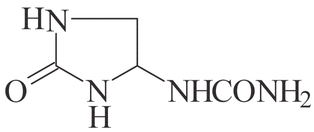
puerarol



kakkonein



miroestrol



allantoin

Fig. 1. Chemical structures of compounds

057-2-1. 葛根 Puerariae Radix

Pueraria lobata Ohwi [Leguminosae]

** T. Arao, J. Kinjo, T. Nohara and R. Isobe: *Chem pharm Bull,* **43** (7), 1176-1179 (1995)

***Oleanane-Type Triterpene Glycosides

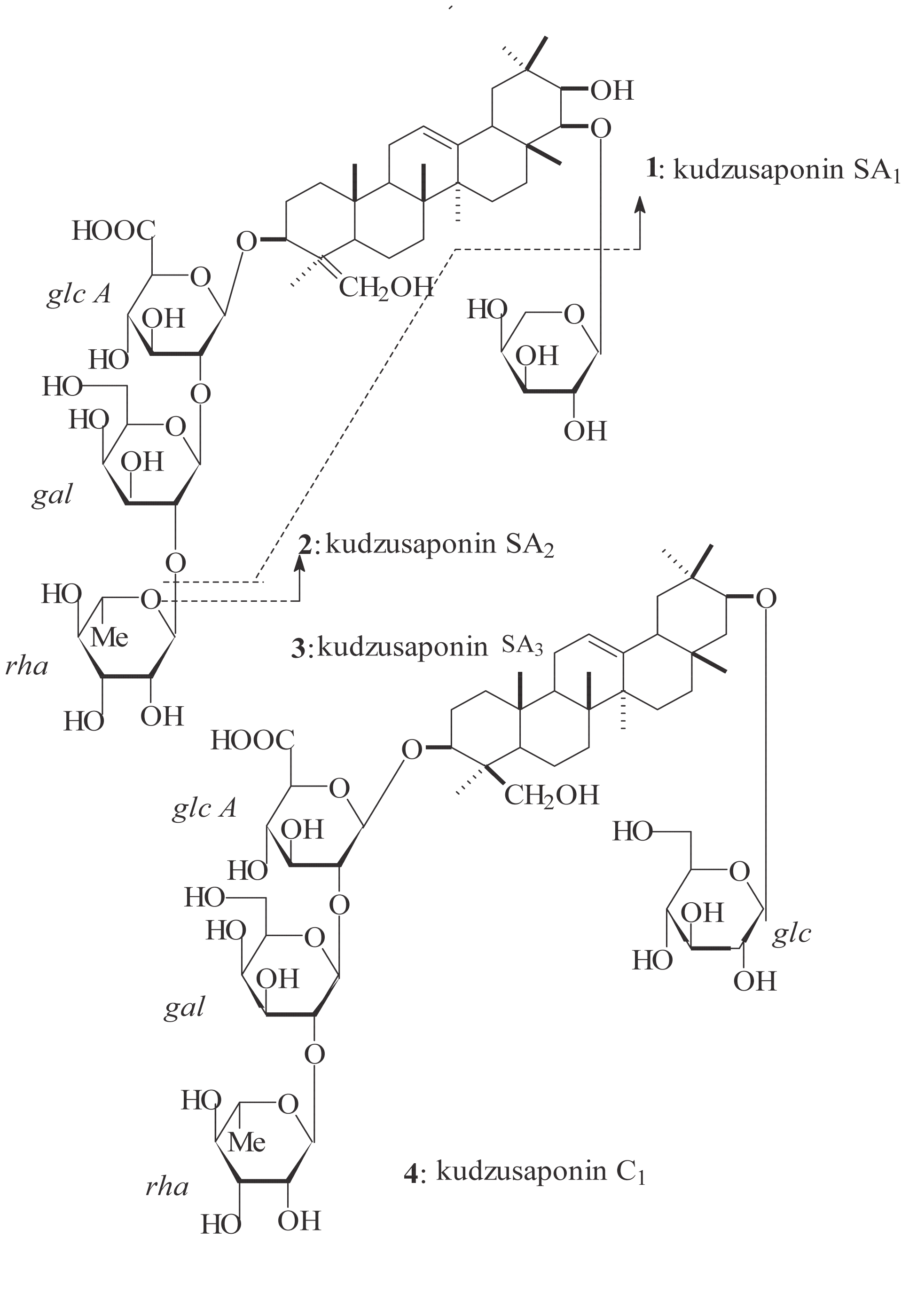


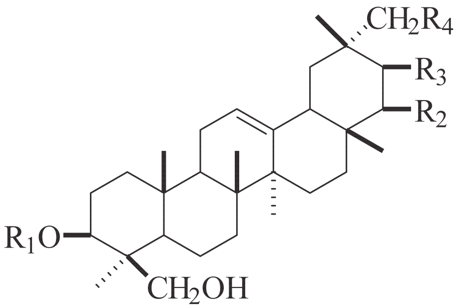
Fig. 1. Chemical structures of compounds **1**--**4**

057-2-2. 葛根 Puerariae Radix

**Pueraia lobata* Ohwi [Leguminosae]

** T. Arao, J. Kinjyo, T. Nohara, R. Isobe, *Chem. Pharm. Bull.* **45** (2), 362-366 (1997)

*** Oleanane-Type Triterpene Glycosides



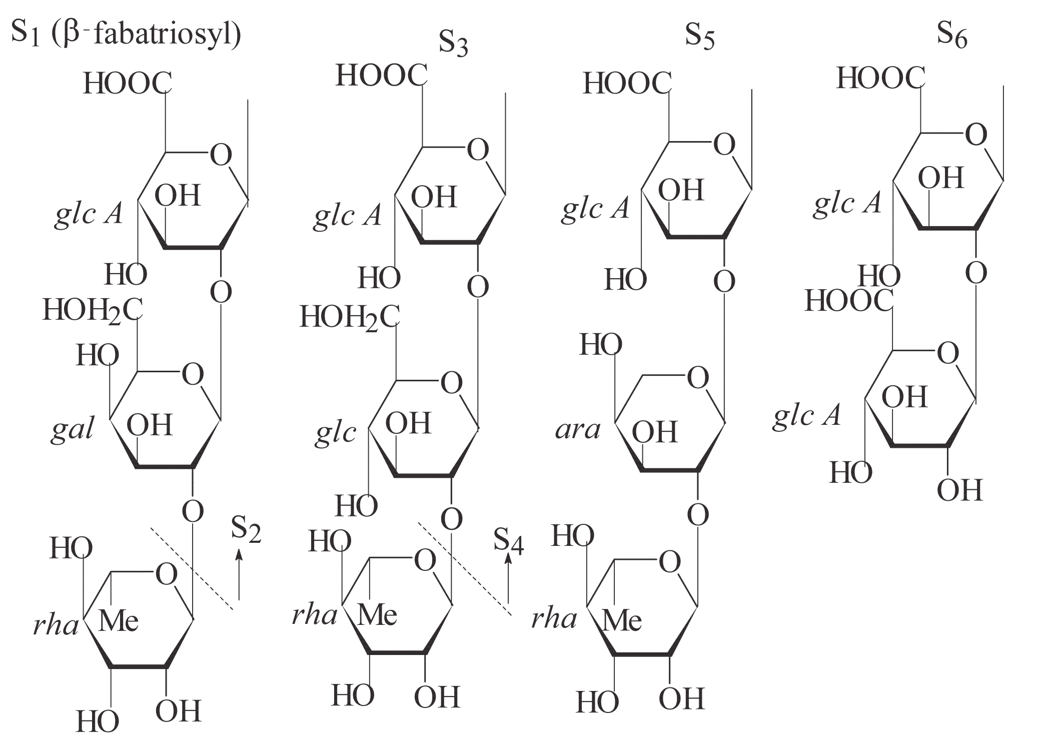
		R_1	R_2	R_3	R_4
1:	kudzusaponin A_1	S_5	xyl	OH	OH
2:	kudzusaponin A_2	S_2	H	OH	OH
3:	kudzusaponin A_4	S_4	H	OH	OH
4:	kudzusaponin A_5	S_3	H	OH	OH
5:	kudzusaponin SA_4	S_6	ara	OH	H
6:	kudzusaponin SB_1	S_1	ara	H	H
7:	kudzusaponin A_3	S_1	H	OH	OH
8:	soyasaponin A_3	S_1	H	OH	H
9:	soyasaponin I	S_1	H	H	H

Fig. 1. Chemical structures of compounds **1**--**9**

057-2-3. 葛根 Puerariae Radix

* Oleanane-Type Triterpene Glycosides from
Pueraria lobata Ohwi [Leguminosae]

** T. Arao, J. Kinjo, T. Nohara and R. Isobe:
Chem. Pharm.Bull. **45** (2), 362-366 (1997)

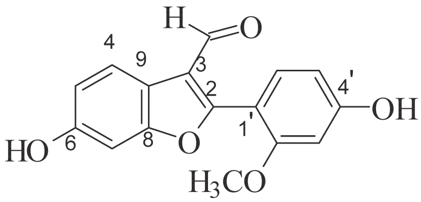


057-3. 葛根 Puerariae Radix

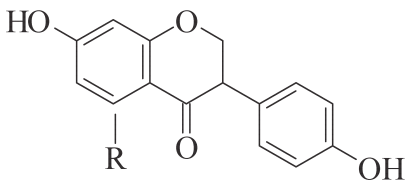
* *Pueraria lobata* Ohwi [Leguminosae]

** Dae Sik Jang, Jong Min Kim, Yun Mi Lee, Young Sook Kim, Joo-Hwan Kim, and Jin Sook Kim:
Chem. Pharm. Bull. **54** (9), 1315-1317 (2006)

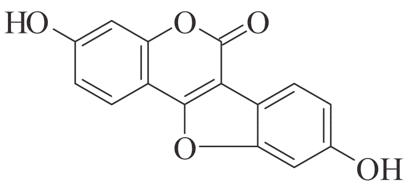
***Puerariafuran, a New Inhibitor of Advanced Glycation End Products(AGEs)Isolated.



1. puerariafuran*36)36)



3. daidzein R=H
4. genisterin R=OH



2. coumestrol

Fig. 1. Chemical structures of compounds **1**--**4**

* All the isolated (**1**-**4**)were evaluated for the inhibitory activity on AGEs (Advanced glycation end-products) formation *in vitro.*

057-4-1. 葛根 Puerariae Radix

* Biotransformation of C-Glucosylisoflavone Puerarin to Estrogenic (3*S*)-Equol in Co-culture of Two Human Intestinal Bacteria

** Jong-Sik Jin, Tomohiro Nishihata, Nobuko Kakiuchi, and Masao Hattori: *Biol. Pharm. Bull.* **31**(8), 1621-1625 (2008)

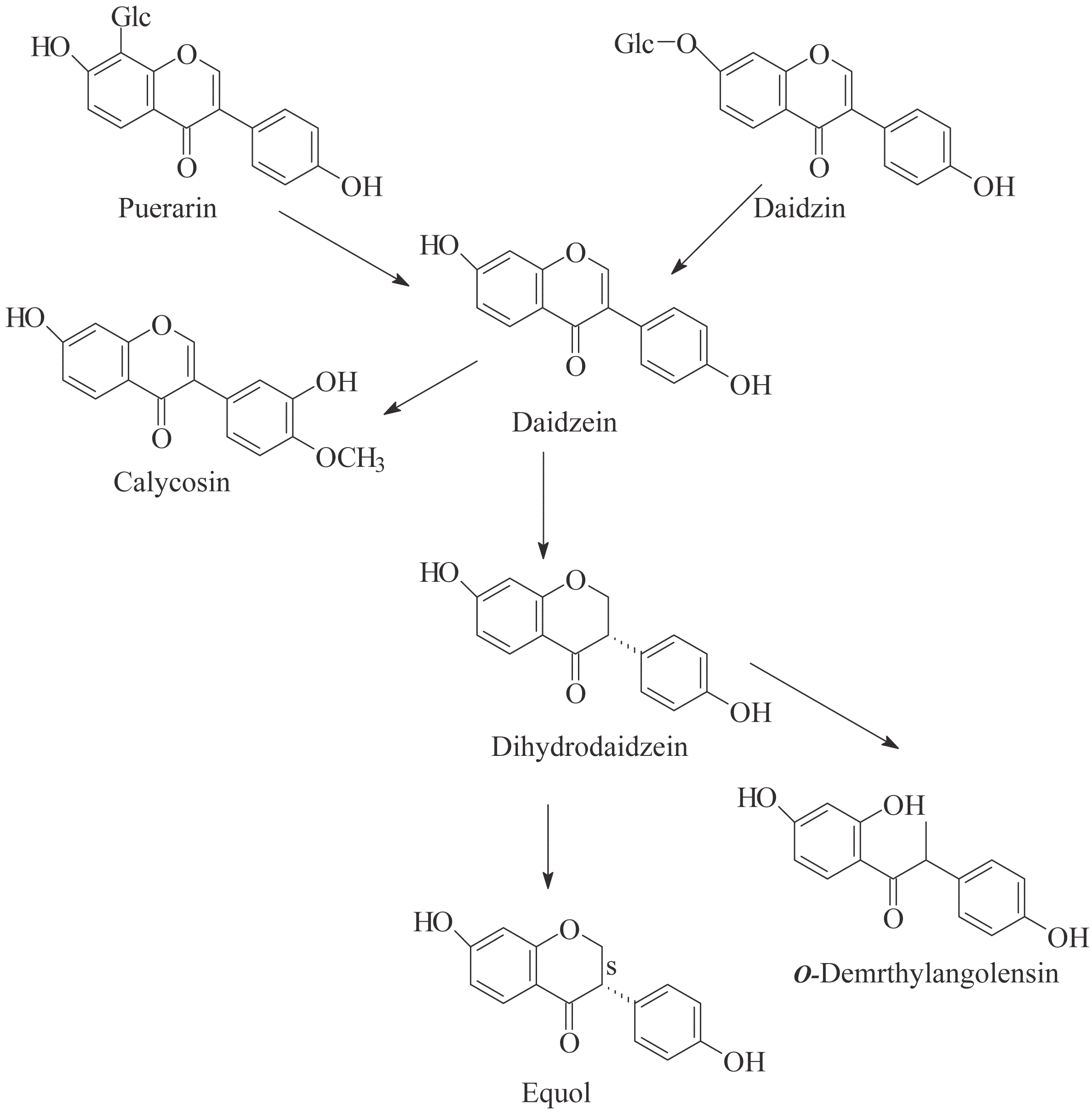
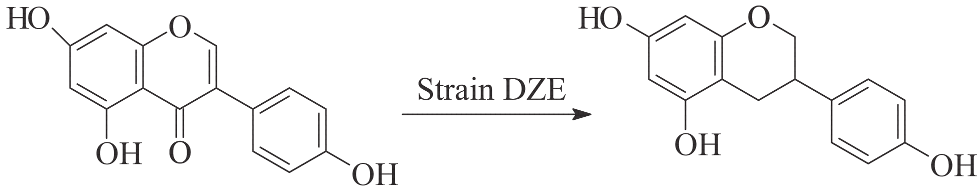


Fig. 1-1. Proposed Metabolic Pathway of Puerarin and Daidzein by Human Intestinal Bacteria

057-4-2. 葛根 Puerariae Radix

* Masao Hattori et al : *Biol. Pharm. Bull.* **31** (8), 1621-1625 (2008)

** Continued 057-4-1



Genistein 5-Hydroxyequol

Fig. 1-2. Biotransformation of Genistein by Strain DZE

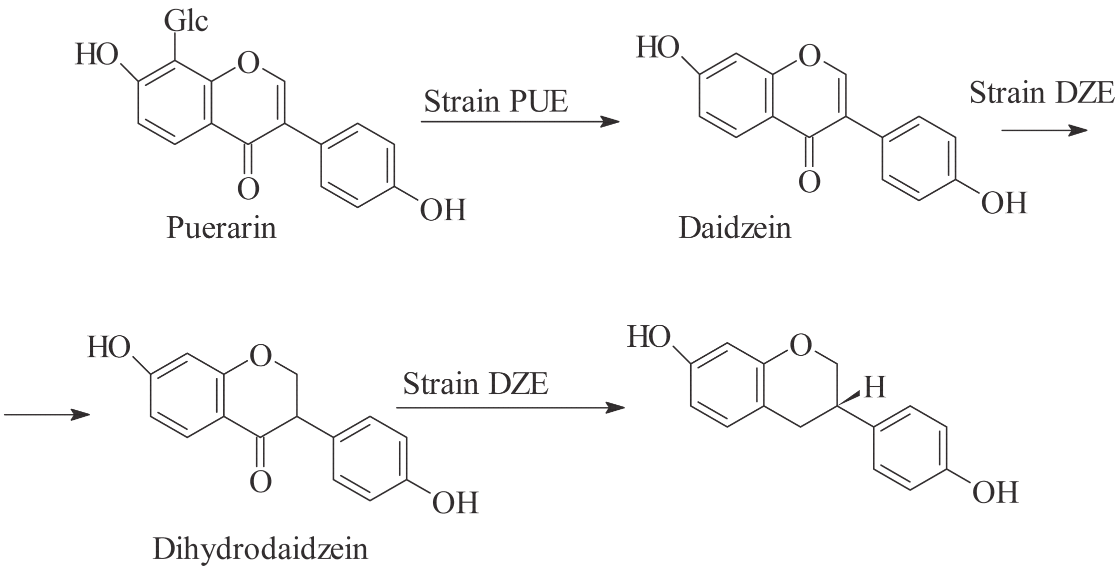
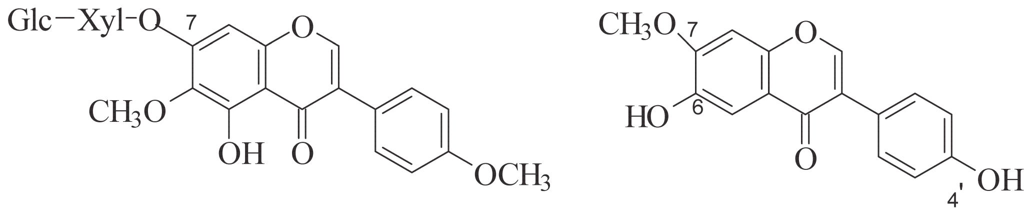


Fig. 1-3. Proposed Metabolic Pathway of Puerarin to S-Equol by Human Intestinal Bacteria, Strain PUE and DZE under Anaerobic Conditions

057-5-1. 葛花 Puerariae Flos

* M.Kubo, M. Sasaki, T. Namba, S. Naruo:
Chem. Pharm. Bull. **23** 2499 (1975)



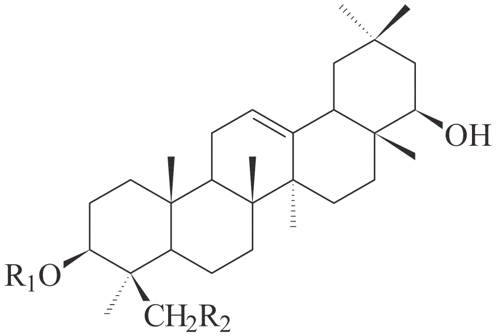
kakkalide kakkatin

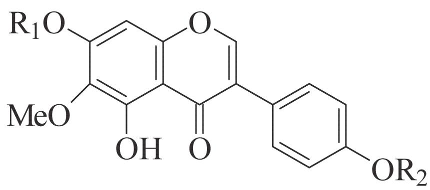
Fig. 1. Chemical structures of kakkalide and kakkatin isolated from Puerariae Flos

057-5-2. 葛花 Puerariae Flos

* Isoflavones and Saponins

** Yujiro Niiho, Yoshijiro Nakajima, Taashi Yamazaki, Mitsuru Olamoto, Ryota Tsuchihashi, Mitsuru Kodera, Junei Kinjo,Toshihiro Nohara: *J Nat Med,* **64** (3), 313-320 (2010)

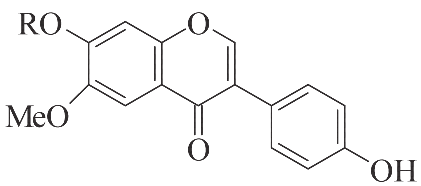




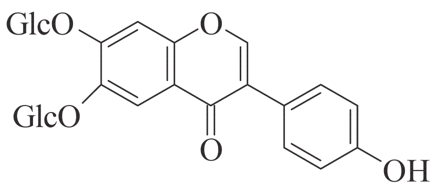
	R_1	R_2
kaikasaponin III (**1**)	S_1	H
kakkasaponin I (**2**)	S_2	H
soyasaponin I (**3**)	S_1	OH

* S_1=GlcA--Gal--Rha
S_2=GlcA--Ara--Rha

	R_1	R_2
kakkalide (**4**)	Glc--Xyl	Me
irisolidone 7-***O***-glucoside (**5**)	Glc	Me
irisolidone (**6**)	H	Me
tectorigenin 7-***O***-xylosyl glucoside (**7**)	Glc--Xyl	H
tectoridin (**8**)	Glc	H
tectorigenin (**9**)	H	H



glycitin (**10**) R=Glc
glycitein (**11**) R=H



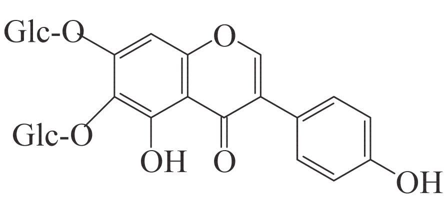
6-hydroxygenistein 6,7-di-***O***-glucoside (**12**)

Fig. 1. The Structures of compounds isolated from Puerariae Flos

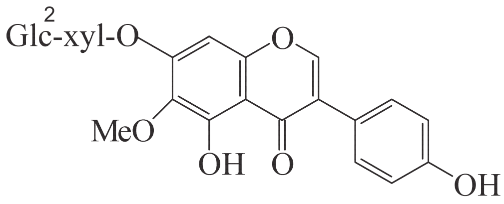
057-5-3. 葛花 Puerariae Flos

* *Pueraiae flos* alleviates metabolic diseases in Western diet-loaded, spontaneously obese type 2 diabetic mice

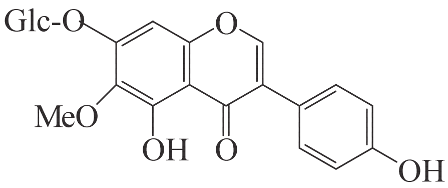
*** Koshi Kubo, Ken-ichi Miymoto et al : *J Nat Med* **66** (4) 622-630 (2012)



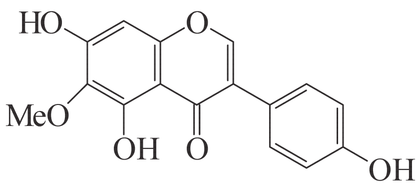
6-Hydroxygenistein 6,7-di-*O*-glucoside



Tectrigenin 7-*O*-xylosylglucoside



Tectridin

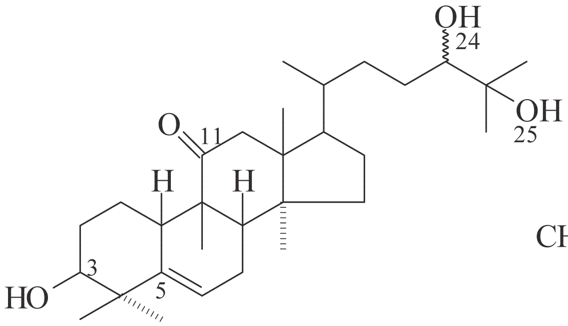


Tectorigenin

Fig. 1. The components of *Puerariae flos* extract

058-1-1. 栝樓根 Trichosanthis Radix

* *Trichosanthes kirilowii* Maxim. [Cucurbitaceae]



11-oxo-cucurbit-5-ene-3β, 24, 25−triol

$CH_3-(CH_2)_3(CH=CH)_3-(CH_2)_7-COOH$

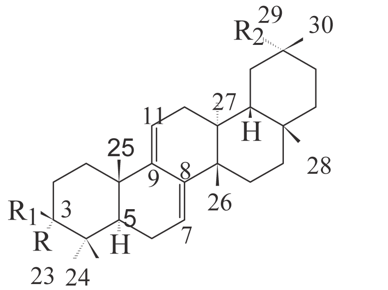
(9t,11c,13c)trichosantic acid

Fig. 1. Chemical structures of compounds

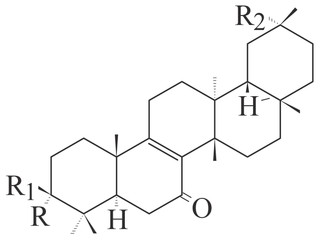
058-2-1. 栝樓仁 Trichosanthes Semen

* *Trichosanthes kirilowii* Maxim. [Cucurbitaceae]

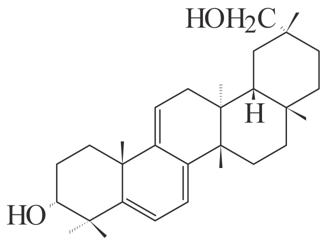
** T. Akihisa, K. Yasukawa, Y. Kimura, M. Takido, Wilhelmus C. M.C. Kokke, and T. Tamura: *Chem. Pharm. Bull.* **42**(5), 1101-1105 (1994)



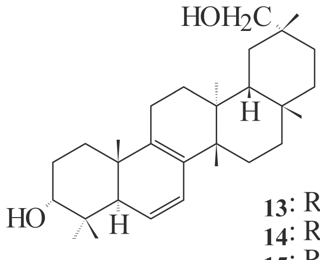
1: R=OH, R_1=H, R_2=CH_2OH
2: R=OCOPh, R_1=H, R_2=CH_2OH
3: R=OAc, R_1=H, R_2=CH_2OAc
4: R=H, R_1=OH, R_2=CH_2OH
5: R=H, R_1=OAc, R_2=CH_2OAc
6: R=R_1=O, R_2=CHO
7: R=R_1=O, R_2=COOH



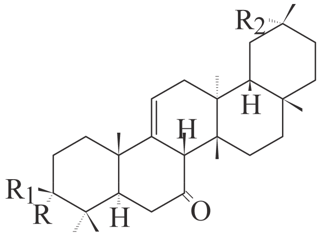
8: R=OH, R_1=H, R_2=CH_2OH
9: R=H, R_1=OH, R_2=Me
10:R=H, R_1=OAc, R_2=Me



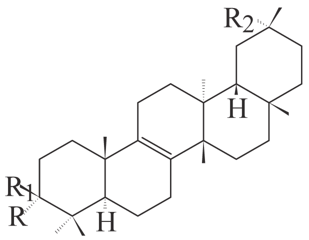
11



12



13: R=H, R_1=OAc, R_2=Me
14: R=OH, R_1=H, R_2=CH_2OH
15: R=OAc, R_1=H, R_2=CH_2OAc



16: R=H, R_1=OH, R_2=Me
17: R=H, R_1=OAc, R_2=Me
18: R=OH, R_1=H, R_2=CH_2OH
19: R=OAc, R_1=H, R_2=CH_2OAc

20: R=H, R_1=OH, R_2=CH_2OH
21: R=H, R_1=OAc, R_2=CH_2OAc

D:C-friedo-oleanane triterpenes:karounidiol (**1**), its 3-*O*-benzoate (**2**), 7-oxodihydrokarounidiol (**8**), 5-dehydrokarounidiol (**11**), and isokarounidiol (**12**). D:C-friedo-oleana-7,9(11)-diene-3-β,29-diol (3–epikarounidiol: 4), 7–oxo-D:C-friedo-olean-8-en-3β-ol (7-oxoisomultiflorenol; 9), 7-oxo-8β–D:C-friedo-olean-9(11)-ene-3α,29-diol (14; this was isolated and identified as its acetyl derivative, 15), D:C-friedo-olean-8-ene-3α,29–diol (3-epibryonolol; 18), and D:C-friedo-olean-8-ene-3β, 29-diol (bryonolol; 20),

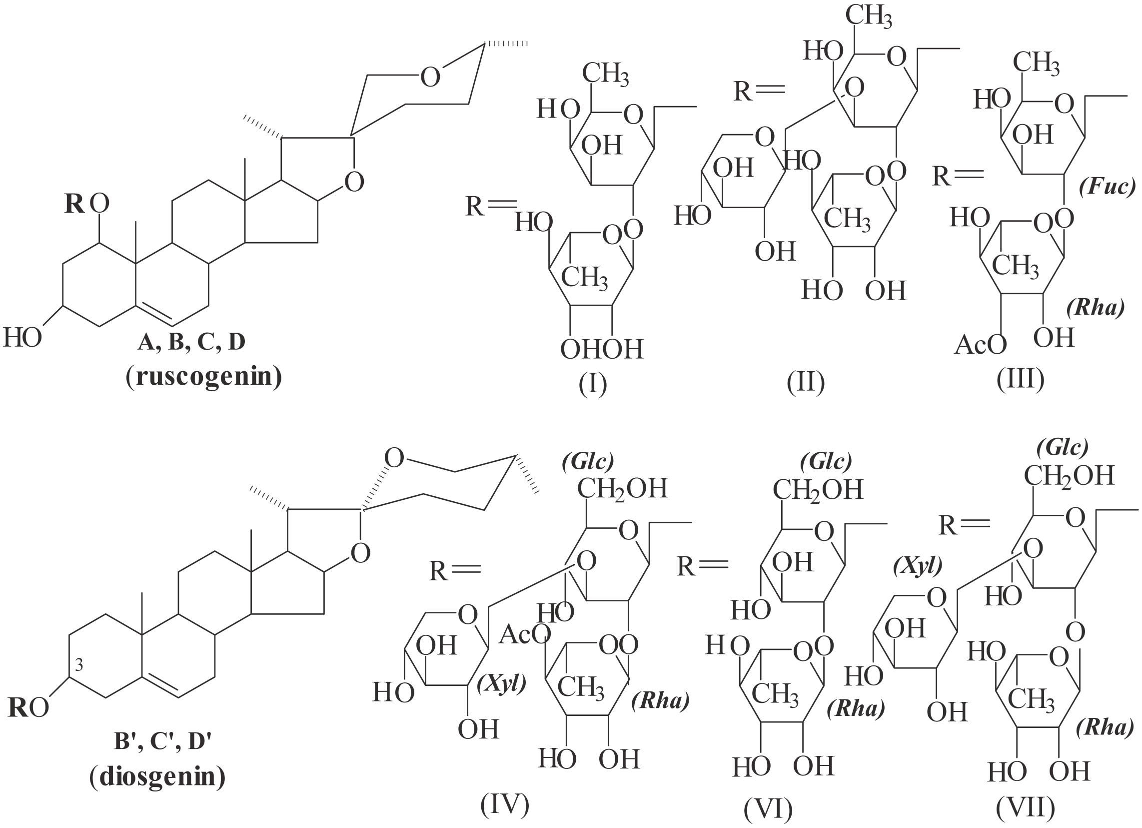
---

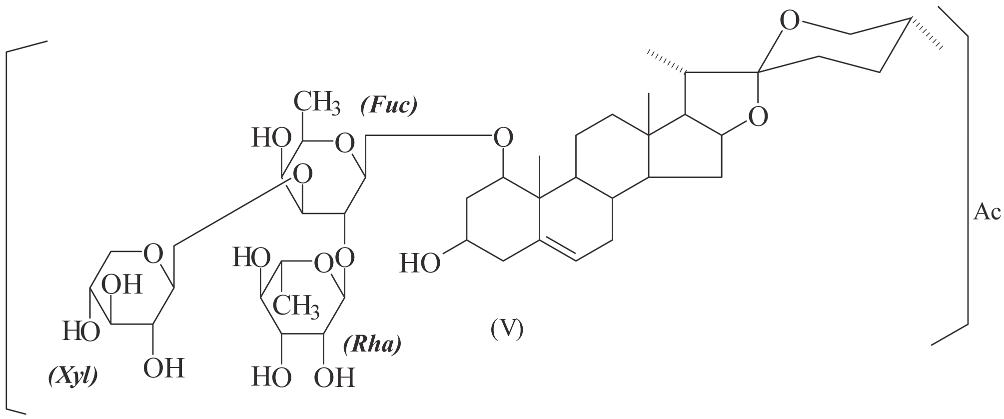
* **C-Friedo-Oleanane Triterpenes:**

1) karounidiol, **2**) its 3-***O***-benzoate,
4) Epikaroinidiol, **5**) 3-Epikarounidiol Diacetate,
15) 7-Oxo-8β–D:C-friedo-olean-9(11)-ene-3α, 29-diol Diacetate and its Hydroxy Product (8).
9) 7-Oxoisomultiflorenol, 1**0**) 7-Oxoisomultiflorenol Acetate
11) 5-dehydrokarounidiol, isokarounnidiol, **17**) Isomultiflorenol Acetate
19) 3-Epibryonolol Diacetate and its Hydrolysis Product (18).
20) Butyonolol, 21) Butyonolol Diacetate and its Hydrolysis Product (20)

059-1-1. 麥門冬 Ophiopogonis Tuber

* *Ophiopogon japonicus* Ker-Gawler [Liliaceae]

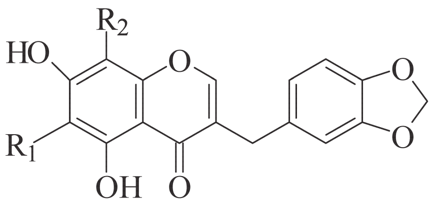




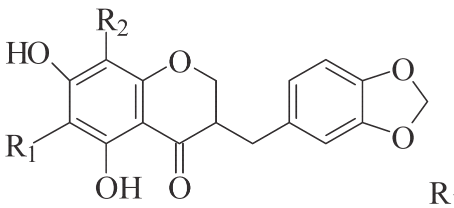
ophiopogonins	aglycones	sugar components
ophiopogonin A (III)	ruscogenin	fuc, (acetyl), rha.
ophiopogonin B' (IV)	diosgenin	glc, xyl (acetyl), rha.
ophiopogonin C (V)	ruscogenin	fuc. xyl (acetyl), rha.
ophiopogonin C' (VI)	diosgenin	glc, rha.
ophiopogonin D' (VII)	Ddosgenin	glc, xyl , rha.
ophiopogonin B (I)		
ophiopogonin D (II)		

059-1-2. 麥門冬 Ophiopogonis Tuber

* *Ophiopogon japonicus* Ker-Gawler [Liliaceae]



	R_1	R_2
ophiopogonone A	CH_3	H
methylophiopogonone A	CH_3	CH_3



	R_1	R_2
ophiopogonanone A	CH_3	H
methylophiopogonanone A	CH_3	CH_3

Fig. 1. Chemical structures of compounds

059-2-1. 麥門冬 Ophiopogonis Tuber

* *Ophiopogon chekiangensis* K. Kimura et H. Migo [Liliaceae]

* * Watanabe Y, Hirai Y, Sanada S, Ida Y, Tanaka T, and Shoji J: *Shoyakugaku Zasshi,* **44**(2), 117-121 (1990)

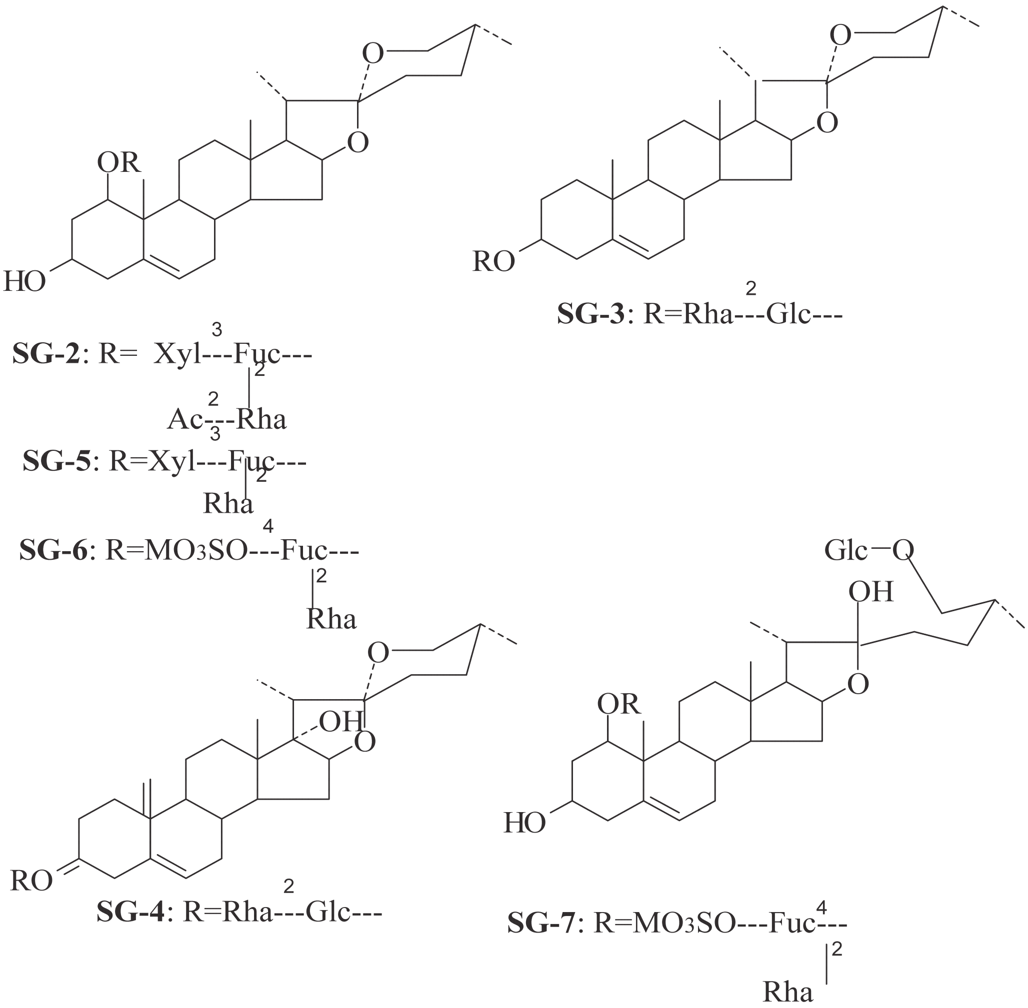


Fig. 1. Chemical structures of compounds

* **SG-2**: ruscogenin 1-***O***-[2-***O***-acetyl-α–L-rhamnopytanosyl(1 ⟶ 2)]-[β–D-xylopyranosyl (1⟶ 3)]-β–D-fucopyranoside

SG-5: ophiopogonin D

SG-6: ruscogenin 1-***O***-α–L-rhamnopyranosyl(1 ⟶ 2)-4-***O***-sulfo-β–D-fucopyranoside

SG-3: diosgenin 3-***O***-α–L-rhamnopyranosyl(1 ⟶ 2)–β–D-glucopyranoside

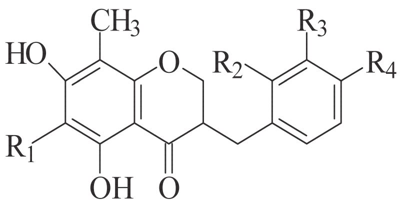
SG-4: pennogenin-3-***O***-*α*–L- rhamnopyranosyl(1 ⟶ 2)-β–D-glucopyranoside

SG–7:26– –β–D-glucopyranosyl-25(*R*)-furost-5-en-1β,3β,22,26–tetraol 1-***O***-α–L-rhamnopyranosyl(1 ⟶ 2)-4-***O***-sulfo-β–D-fucopyranoside

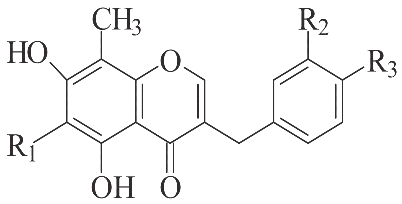
059-2-2. 麥門冬 Ophiopogonis Tuber

* *Ophiopogon chekiangensis* K. Kimura et H. Migo [Liliaceae]

** Watanabe Y et al : *Shoyakugaku Zasshi,* **44**(2), 117-121 (1990)



SE-1: R_1=CHO, R_2=H, R_3,R_4=-O-CH_2-O-
SE-4: R_1=CH_3, R_2=H, R_3, R_4=-O-CH_2-O-
SE-5: R_1=CH_3, R_2, R_3=H, R_4=OCH_3
SE-7: R_1=CH3,R_2=OH, R_3, R_4=-O-CH_2-O-



SE-2: R_1=CHO, R_2, R_3=-O-CH_2-O-
SE-3: R_1=CHO, R_2=H, R_3=OCH_3
SE-6: R_1=CH_3, R_2, R_3=-O-CH_2-O-

Fig. 1. Chemical structures of compounds **SE-1**---**SE-7**

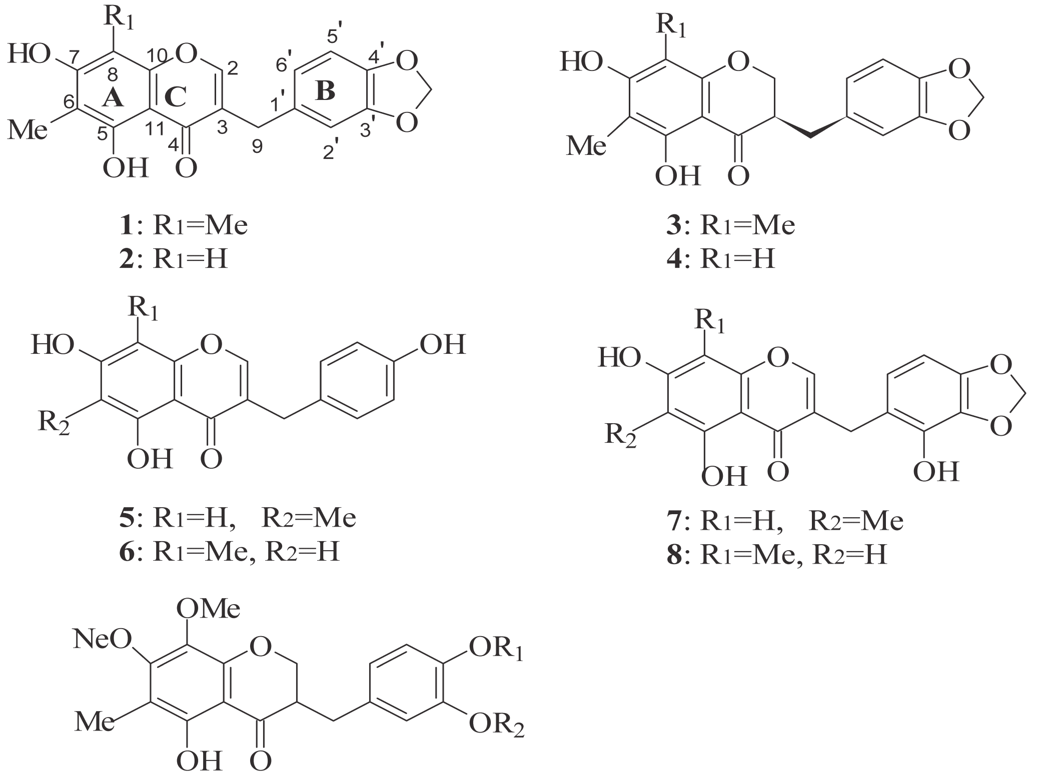
***SE-1**: 6-formyl-5,7-dihydroxy-8-methyl-3-(3,4,-methylenedioxybenzyl)-chroman-4-one
SE-4: methylophiopogonanone A
SE-5: methylophiopogonanone B
SE-7: 5,7-dihydroxy-6,8-dimethyl-3-(2-hydroxy-3,4-methylenedioxybenzyl)-chroman-4-one
SE-2: 6-formyl-5,7-dihydroxy-8-methyl-3-(3,4-methylenedioxybenzyl)-chromen-4-one
SE-3: 6-formyl-5,7-dihydroxy-8-methyl-3-(3-methoxybenzyl)-chromen-4-one
SE-6: methylophiopogonone A

059-3-1. 麥門冬 Ophiopogonis Tuber

* *Ophiopogon japonica* Ker-Gawler cv. Nanus [Liliaceae]

** Asano T, Murayama T, Hirai Y,and Shoji J :
Chem Pharm Bull, **41**(2), 391-393 (1993)

*** Homoisoflavanoids



1: R_1=Me
2: R_1=H
3: R_1=Me
4: R_1=H
5: R_1=H, R_2=Me
6: R_1=Me, R_2=H
7: R_1=H, R_2=Me
8: R_1=Me, R_2=H
9: R_1=R_2=H

Fig. 1. Chemical structures of compounds

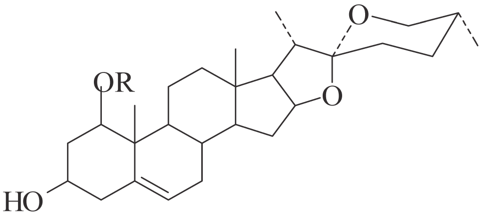
* **1**: methylophiopognone A [5,7-dihydroxy-6,8-dimethyl-3-(3',4'-methylenedioxybenzyl) chromone]
2: ophiopogonone A [5,7-dihydroxy-6-methyl-3-(3',4'-methylenedioxy-benzyl) chromone]
3: methylophioponanone A [5,7-dihydroxy-6,8-dimethyl-(3*R*)-(3',4'-methylenedioxy-benzyl)-chroman-4-one]
4: ophiopogonanone A [5,7-dihydroxy-6-methyl-(3*R*)-(3',4'mmethylenedioxybenzyl)chroman-4-one]
5: JE-III [5,7-dihydroxy-3-(4'-hydroxybenzyl)-6-methylchromone]
6: desmethylisoophiopogonone B [5,7-dihydroxy-3-(4'-hydroxybenzyl)-8-methylchromone]
7: 5,7,2'-trihydroxy-6-methyl-3-(3'.,4'-methylenedioxybenzyl) chromone
8: 5,7,2'-trihydroxy-8-methyl-3-(3',4'-methylenedioxybenzyl) chromone
9: 5-hydroxy-7,8-dimethoxy-6-methyl-3-(3',4'-dihydoxybenzyl) chroman-4-one

059-3-2. 麥門冬 Ophiopogonis Tuber

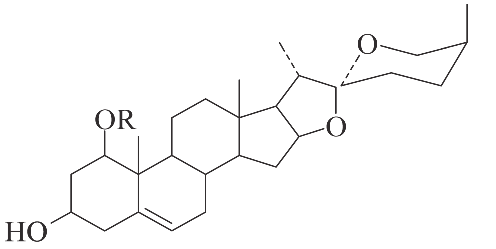
* *Ophiipogon japonicus* Ker-Gawler cv. Nanus [Liliaceae]

** Asano T, Murayama T, Hirai Y, and Shoji J: *Chem Pharm Bull,* **41**(3), 566-570 (1993)

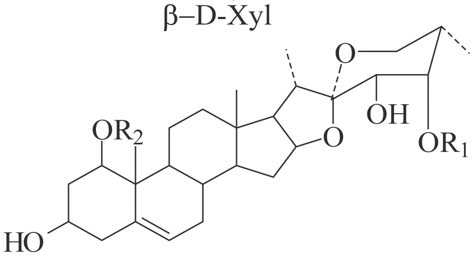
*** Monoterpene glycoside and steroidal glycoside



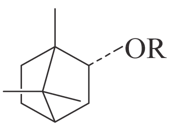
3: R=β–D--Fuc$\overset{2}{-}$-α–L-Rha
(=ophiopogonin B)
5: R=β–D--Fuc$\overset{2}{-}$-α–L-Rha
|
β–D-Xyl
(=ophiopogonin D)
7: R=SO3M



: R=β–D-Fuc$\overset{2}{-}$-α–L-Rha(=glycoside C)
6: R=β–D-Fuc$\overset{2}{-}$-α–L-Rha(=Ls-10)
|3
β–D-Xyl



8: R1=β–D-Fuc, R2=α–L-Ara$\overset{2}{-}$-α–L-Rha
|3
β–D-Xyl
9: R1=β–D-Fuc,
R2=α–L-Ara-$\underset{2}{-}$α–L-2,3,4-tri-*O*-Ac-Rha
|3
β–D-Xyl
10: R1=β–D-Fuc, R2=α–L-Ara-$\overset{2}{-}$α–L-4-*O*-Ac-Rha
|3
β–D-Xyl



1: R=β–D-Glc(=OJV-I)
2: R=β–D-Glc--β–D-Api
(=OJV-II)

Chemical structures of compounds **1--10**

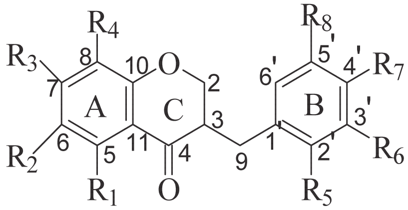
1**: (OJV-I) . ***l-borneol ***O***-β–D-glucopyranoside
2: (OJV-II). ***l***-borneol ***O***-β–D-apiofuranosyl(1⟶6)-***O***-β–D-glucopyranoside
3: (OJV-III). ruscogenin 1-***O***-α–L-rhamnopyranosyl(1⟶2)-β–D-fucopyranoside
(=Ophiopogonin B)
4: (OJV-IV) (25*S*)-ruscogenin 1-***O***-α–L-rhamnopyranosyl(1⟶2)-β–D-fucopyranoside
(=glycoside C)
5: (OJV-V) ruscogenin 1-***O***-[α–L-rhamnopyranosyl(1⟶2)] [β–D-xylopyranosyl(1⟶3)]
β–D-fucopyranoside (=Ophiopogonin D)
6: (OJV-VI) (Ls-10), **7**: (OJV-VII) Ruscogenin 1-sulfate, **8**: (OJV-VIII), **9**: (OJV-IX),
10: (OJV-X).

059-4. 麥門冬 Ophiopogonis Tuber

* *Ophiopogon japonicus* Ker-Gawler
O. chekiangensisK. Kimura et H. Migo [Liliaceae]

** S. Takatsuki, T. Narui, A. Maeyama, R. Asano, H. Abuki, Y. Hiraga, T. Okuyama : *Natural Medicines* **52**(2), 145-150 (1998)

Homoisoflavonoid:



methylophiopogonanone A : R_1=R_3=OH, R_2=R_4=Me, R_5=R_8=H, R_6,R_7=O −CH_2−O

methylophiopogonanone B : R_1=R_3=OH, R_2=R_4=Me, R_5=R_6=R_8=H, R_7=OMe

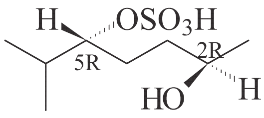
ophiopogonanone A : R_1=R_3=OH, R_2=Me, R_4=R_5=R_8=H, R_6,R_7=O −CH_2·O

Fig. 1. Chemical structures of compounds

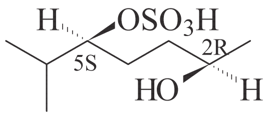
* Cytotoxic activity : Hela −S3

060. 麝香 Moschus

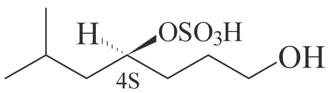
* *Moschus moschiferus* Linn'e [Cervidae]



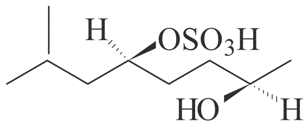
(2*R*, 5*R*)-musclide-A1



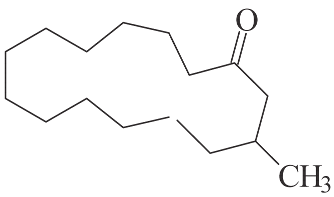
(2*R*, 5*S*)-musclide-A1



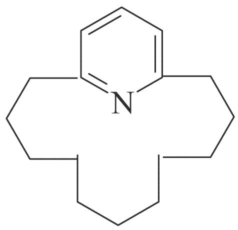
(4*S*)-musclide A2



(2*R*, 5*S*)-musclide-B



muscone

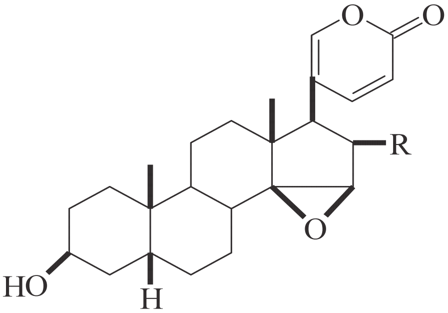


muscopyridine

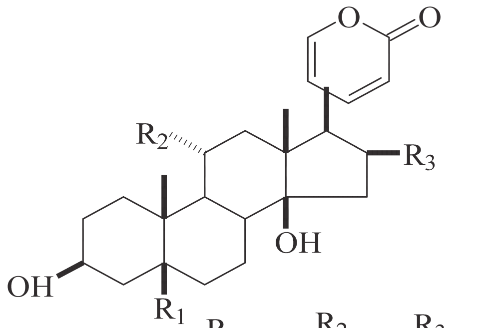
Fig. 1. Chemical structures of compounds

061. 蟾酥 Bufonis Venenum

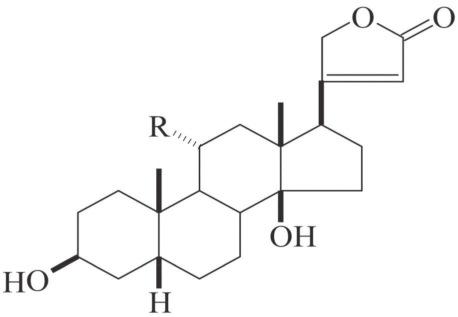
* *Bufo bufo gargorizans* Cantor [Bufonidae]



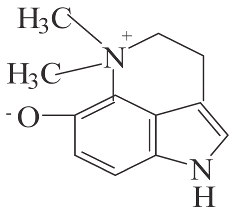
cinobufogenin R=OAc
resibufogenin R=H



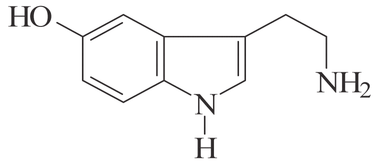
	R_1	R_2	R_3
bufalin	H	H	H
bufotalin	H	H	OAc
telocinobufagin	OH	H	H
gamabufotalin	H	OH	H



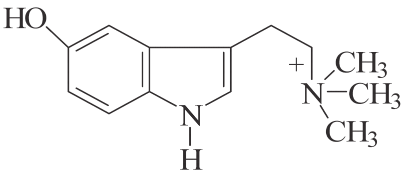
digitoxigenin R=H
sarmentogenin R=OH



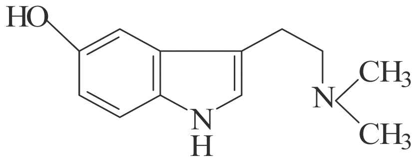
dehydrobufotenine



serotonin



bufotenidine



bufotenine

$$HOOC-(CH_2)n-CO-NH-\underset{COOH}{CH}-(CH_2)_3-\overset{NH_2}{NH}-C=NH$$

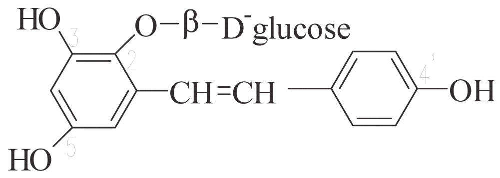
suberylarginine n=6
pimelylarginine n=5
succinylarginine n=2

Fig. 1. Chemical structures of compounds

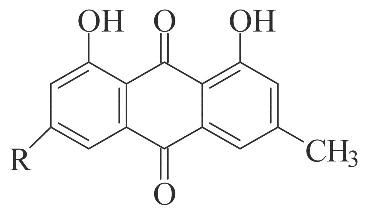
062. 何首烏 Polygoni Multiflori Radix

* *Polygonum multiflorum* Thunb. [Polygonaceae]

K. Hata, M. Kozawa, K. Baba : *YAKUGAKU ZASSHI,* **95(2), 211-213 (1975); K. Yoneda, Y. Maehira, Y. Shinomiya, E. Kanno, M. Kozawa, K. Baba : *Shoyakugaku Zasshi,* **47**(4), 411-413 (1993)



2, 3, 5, 4'-tetrahydroxystilbene-2-*O*-β-D-glucose

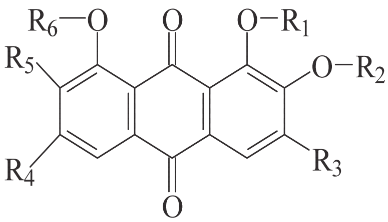


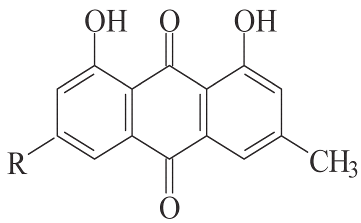
chrysophanol R=H
emodin R=OH
physcion R=OCH_3

Fig. 1. Chemical structures of compounds

063-1-1. 決明子 Cassiae Torae Semen

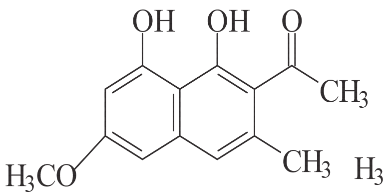
* *Cassia tora* Linn'e
C. obtusifolia Linn'e [Leguminosae]



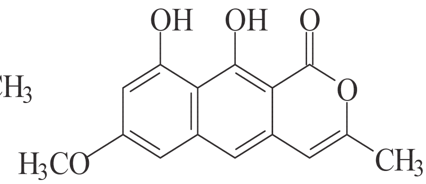


	R_1	R_2	R_3	R_4	R_5	R_6
obtusifolin	CH_3	H	CH_3	H	H	H
obtusin	CH_3	H	CH_3	OCH_3	OCH_3	H
chryso obtusin	CH_3	H	CH_3	OCH_3	OCH_3	CH_3

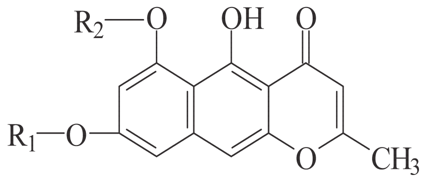
chrysophanol R=H
emodin R=OH
physcion R=OCH_3



torachrysone



toralactone



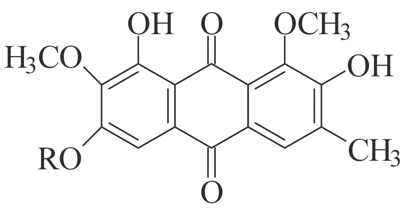
	R_1	R_2
rubrofusarin	CH_3	H
cassiaside	H	Glc

Fig. 1. Chemical structures of compounds

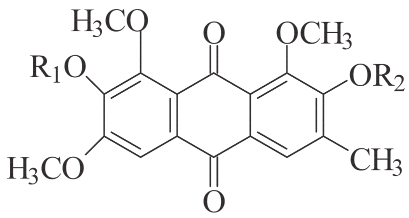
063-1-2. 決明子 Cassiae Torae Semen

* *Cassiae torae* L. [Leguminosae]

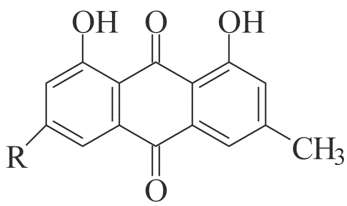
** Dae Sik Jang, Ga Young Lee, Young Sook Kim, Yun Mi Lee, Chan-Sik Kim, Jeong Lim Yoo, and Jin Sook Kim: *Biol. Pharm. Bull.* **30**(11), 2207-2210 (2007)



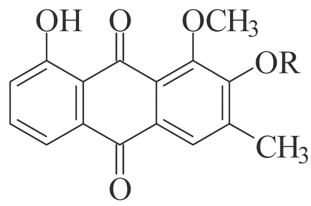
1 R=H
2 R=CH_3



3 R_1=R_2=H
4 R_1=H, R_2=glc



5 R=OCH_3
6 R=OH
7 R=H



8 R=H
9 R=glc

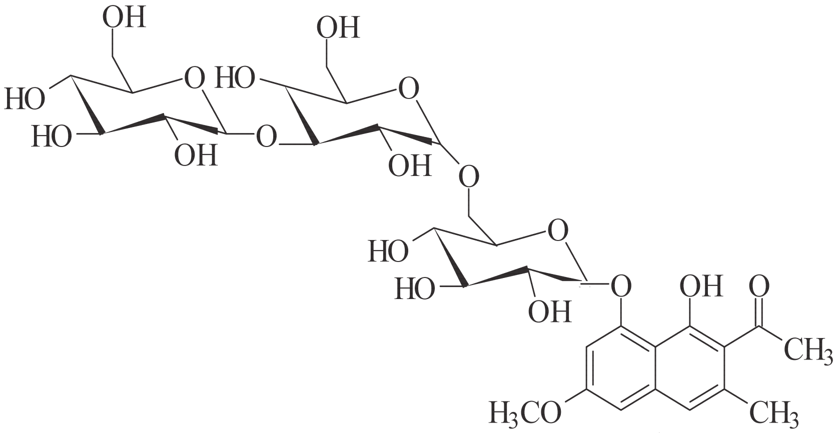
Fig. 1. Structures of Compounds **1**--**9** from the Seeds of *Cassia tora*

* **1**. aurantio-obtusin	**6**. emodin
2. chryso-obtusin	**7**. chrysophanol
3. obtusin	**8**. obtusifolin
4. chryso-obtusin-2-***O***-β–D-glucoside	**9**. obtusinfolin-2-***O***-β–D-glucoside
5. physcion	

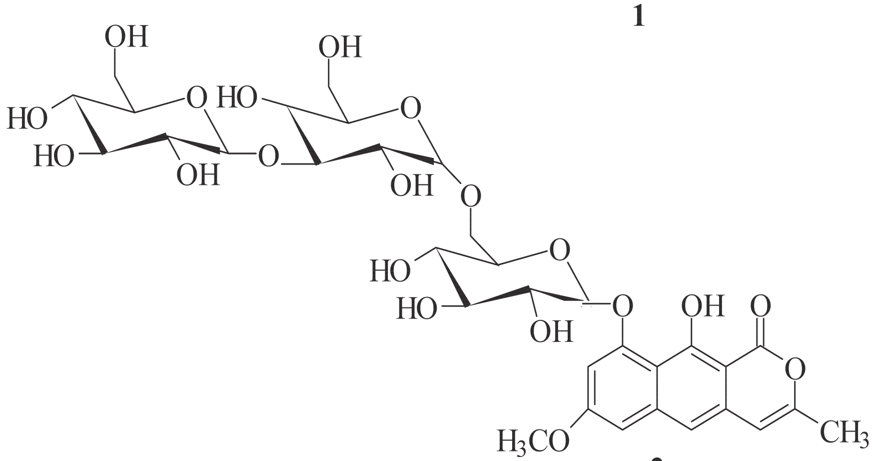
063-2-1. 決明子 Cassiae Torae Semen

* Estrogenic and Anti-estrogenic Activities of *Cassia tora* L. Phenolic Constituents

** Ali Mahmound El-Halwany, Mi Hwa Chung, Norio Nakamura,
Chao-Mei Ma, Tsutomu Nishihara, and Masao Hattori:
Chem. Pharm. Bull. **55**(10), 1476-1482 (2007)



1



2

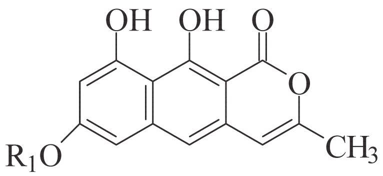
Fig. 1. New Compounds Isolated from *Cassia tora* Semen

* **1**. torachrysone 8-***O***-[β–D-glucopyranosyl(1-3)-***O***-β–D-glucopyranosyl(1-6)-***O***-β–D-glucopyranoside]

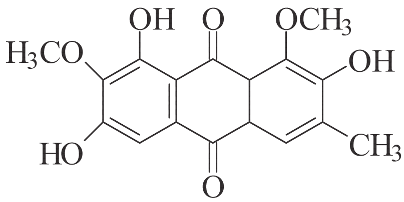
2. toralactone 9-***O***-[β–D-glucopyranosyl–(1–3)– –β–D-glucopyranosyl-(1-6)-***O***-β–D-glucopyranoside]

063-2-2. 決明子 Cassiae Torae Semen

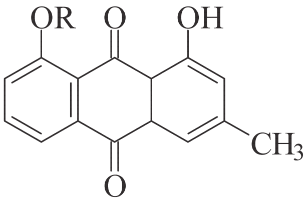
* Continued 063-2-1.



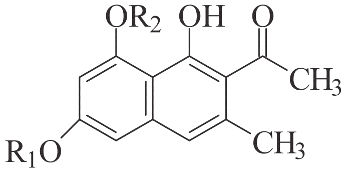
5 R1=CH3 R2=gentiobioside
14 R1=CH3 R2=H



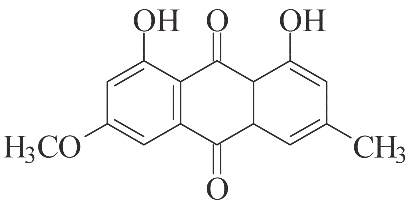
3 R=glc
12 R=H



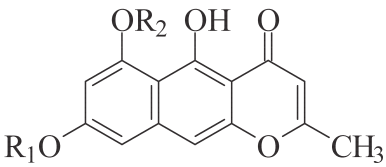
9 R=glc(6-1)glc(3-1)glc
10 R=H
13 R=CH3



4 R1=CH3 R2=gentiobioside
6 R1=H R2=glc
7 R1=CH3 R2=glc(6-1)glc(3-1)glc(6-1)glc



11



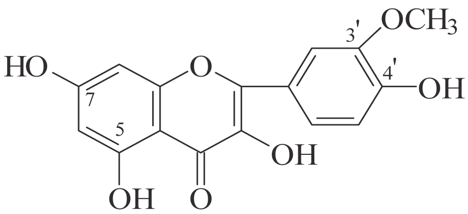
8 R1=CH3 R2=glc(6-1)glc(3-1)glc
15 R1=CH3 R2=H

Fig. 2. Chemical Structures of Isolated Compounds (**3--15**) from the Seeds of *Cassia tora*

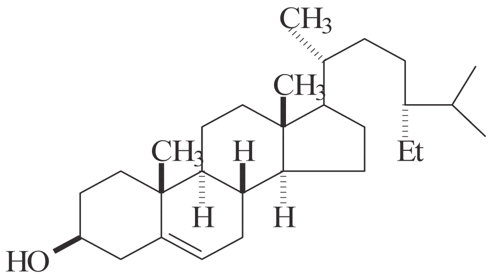
* **3**. aurantio-obtusin 6-***O***-β–D-glucoside; **4**. torachyrysone 8-***O***-β–D-gentiobioside; **5**. toralactone 9-***O***-β–D-gentiobioside; **6**. 6-hydroxymusizin 8-***O***-β–D-glucoside; **7**. torachrysone tetraglucoside; **8**. rubrofusarin triglucoside; **9**. chrysophanol triglucoside; **10**. chrysophanol; **11**. physcion; **12**. 9-methoxychrysophanol; **13**. aurantio-obtusin; **14**. toralactone; **15**. rubrofusarin

064. 蒲黄 Typhae Pollen

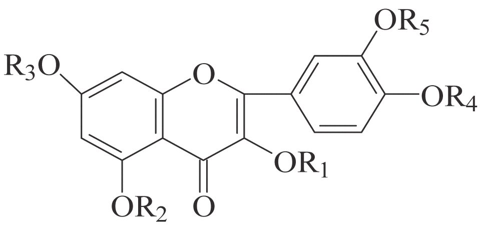
* *Typha angustifolia* L.
T. *lavtifolia* L.
T. *orientalis* Presl.
T. *davidiana* Hand.-Mazz.
T. *minima* Funk. [Typhaceae]



isorhamnetin



β—sitosterol



	R_1	R_2	R_3	R_4	R_5
1.	Glu-Rham	H	Rham	H	CH_3
3.	Glu-Rham	CH_3	Rham	CH_3	CH_3
4.	Glu	H	Rham	H	CH_3
5.	Glu	H	H	H	CH_3
Rutin.	Glu-Rham	H	H	H	H

1.: isorhamnetin-3-rutinoside-7-rhamnoside
3.: isorhamnetin-3-glucoside-4'-rhamnoside
4.: isorhamnetin-3-glucoside

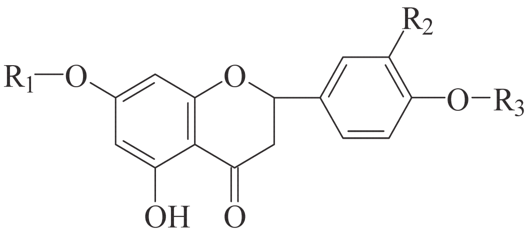
Others Compound:

palmitic acid : $CH_3(CH_2)_{14}COOH$
stearic acid : $CH_3(CH_2)_{16}COOH$
linoleic acid : $CH_3(CH_2)CH{=}CH-CH_2CH{=}CH(CH_2)_7COOH$

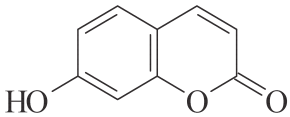
* On the Antihemorrhagic Principles in *Typha lactifolia* L.:
H. Ishida, T. Umino, K. Tsuji and T. Kosuge,
Chem. Pharm. Bull. **36**(11), 414-4420 (1988)

065-1. 枳實 Aurantii Fructus Immaturus

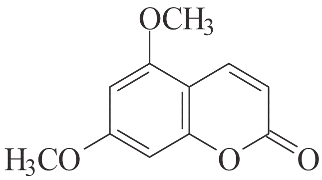
* *Poncirus trifoliata* Raf. [Rutaceae]
Citrus wilsonii Taanaka
C. aurantium L.



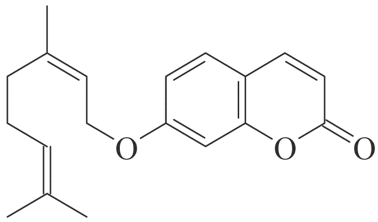
	R_1	R_2	R_3
hesperidin	Glc–Rha	OH	CH_3
neohesperidin	Glc–Rha	OH	CH_3
naringin	Glc –Rha	H	H
poncirin	Glc –Rha	H	CH_3



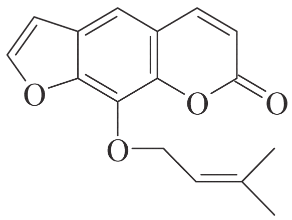
umbelliferone



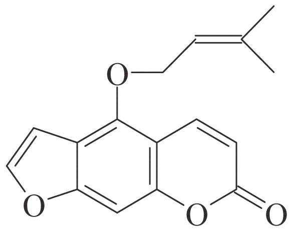
citroptene



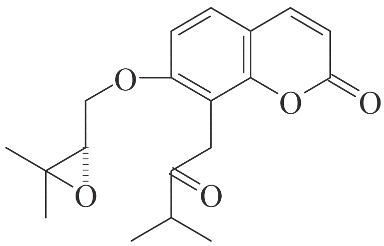
auraptene



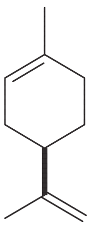
imperatorin



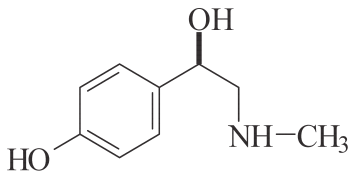
isoimperatorin



isoponcimarin



(+)-limonene



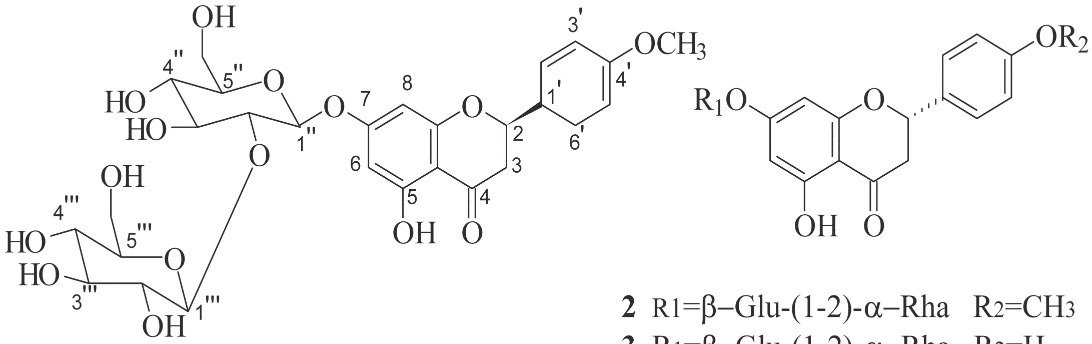
(-)-synephrine

Fig. 1. Chemical structures of compounds

065-2. 枳實 A New Flavanone Glycoside from the Dried Immature Fruits of *Poncirus trifoliata* Raf. [Rutaceae]

* Ah-Reum Han, Jong-Bin Kim, Jun Lee, Joo-Won Nam, Ik-Soo Lee, Chang-Koo Shim, Kyung-Tae Lee, and Eun-Kyoung Seo:

Chem. Pharm. Bull. **55** (8), 1270-1273 (2007)



1

2 R1=β−Glu-(1-2)-α−Rha R2=CH3
3 R1=β−Glu-(1-2)-α−Rha R2=H
4 R1=β−Glu R2=CH3

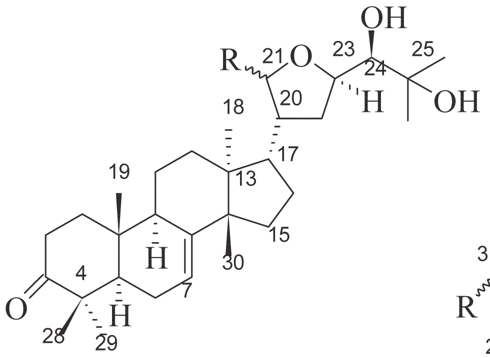
Fig. 1. Chemical structures of compounds **1**--**4**

---

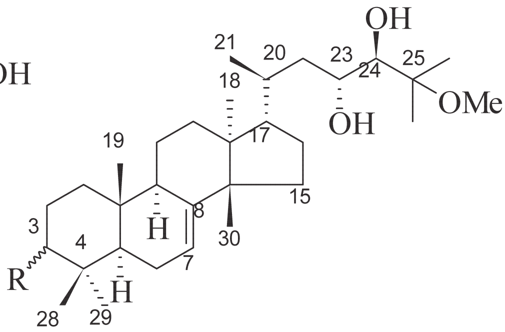
* **1**. (2*R*)-5-hydroxy-4'-methoxyflavanone-7-***O***-{β−glucopyranosyl-(1-2)-β−glucopyranoside}
2. (2*S*)-poncirin, **3**. (2*S*)-naringin, and **4**. (2*S*)-poncirenin.

065-3. 枳實 Terpenoids and Coumarins Isolated from the Fruits of *Poncirus trifoliata* Rafinesque [Rutaceae]

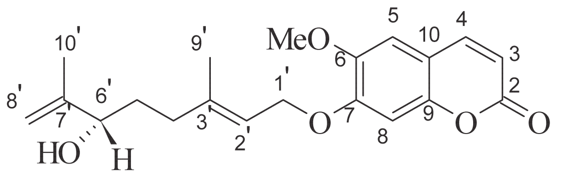
* Guang-Hua Xu, Jeong-Ah Kim, So-Young Kum, Jae-Chun Ryu, Young-Soo Kim, Sang-Hun Jung, Mi-Kyeong Kim, and Seung-Ho Lee:
Chem. Pharm. Bull. **56**(6), 839-842 (2008)



1 R=αOMe
2 R=βOMe



3 R=αOH
4 R=βOH



5 isoschninallylol

Fig. 1. Chemical Structures of Compounds 1-=5

* **Four New Triterpenes:** 21α-methylmelianodiol (**1**), 21β–methylmelianodiol (**2**), hispidol A 25-methyl ether (**3**), hispidol B 25-methyl ether (**4**) **A New coumarin**: isoschninallylol (**5**)	** **Seventeen Known compounds:** Three terpenoids; One steroid; Nine coumarins. Two flavonoids; Two phenolic compounds.

065-4-1. 枳皮、橘皮 Constituents of the Bark of *Poncirus trifoliata* (L.) Raf. [Rutaceae]

* Tao Feng, Rui-Rui Wang, Xiang-Hai Cai, Yong-Tang Zheng, and Xiao-Dong Luo: *Chem. Pharm. Bull.* **58**(7)971-975 (2010)

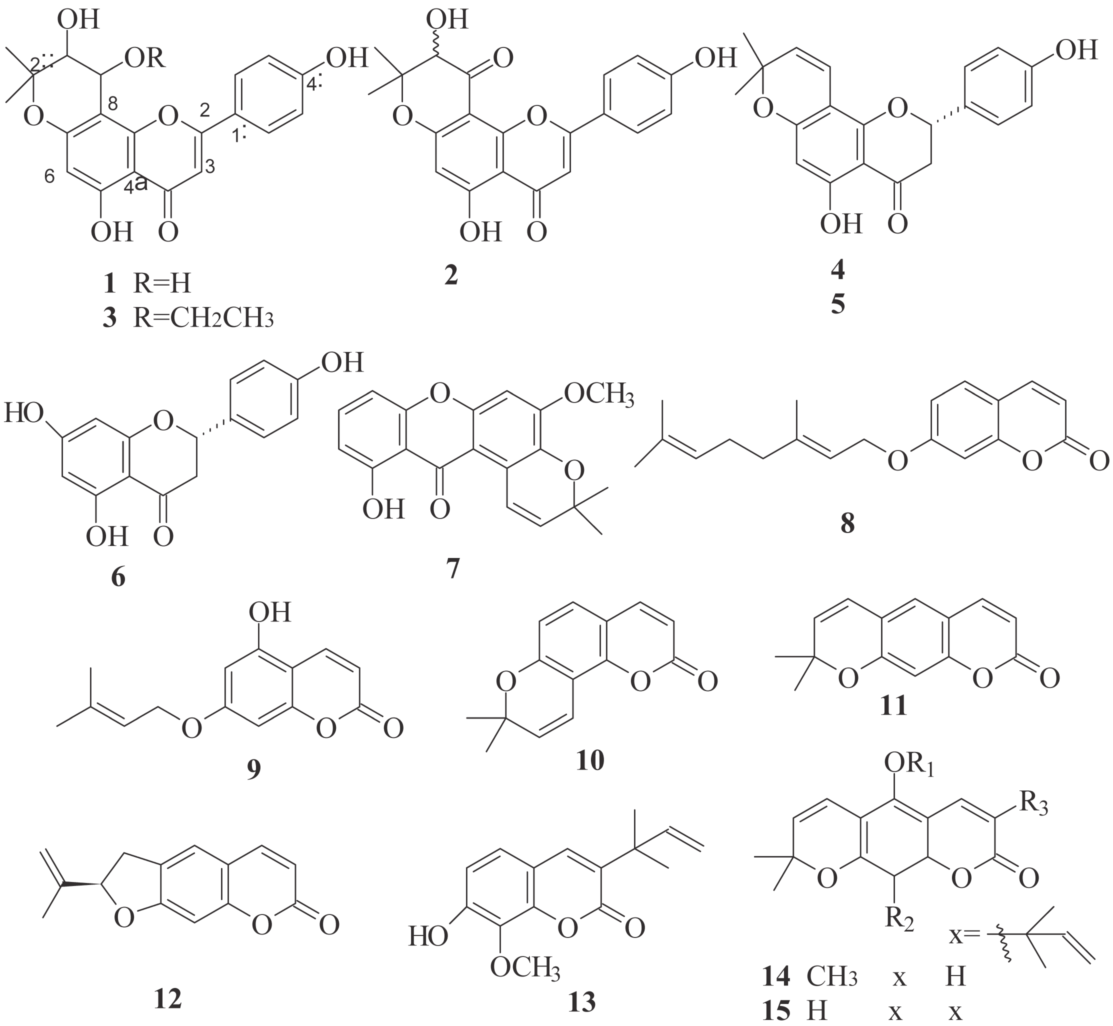


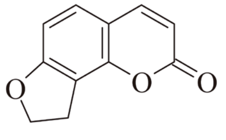
Fig. 1-1. Structures of compounds **1**--**15** isolated from the Bark of *Poncirus trifoliata* (L.) Raf.

* Three new prenylated flvonoids:
(-)-5,4'-dihydroxy-7-8,[(3",4"-*cis*-dihydroxy-3",4"-dihydro)-2",2"-dimthylpyrano]-flavone (**1**),
(-)-5,4'-dihydroxy-7,8-[(3"-hydroxy-4"-one)-2",2" -dimethylpyrano]-flavone (**2**),and
(-)-5,4`-dihydroxy-7,8-[(*cis*-3"-hydroxy-4"-ethoxy-3",4"-dihydro)-2",2"-dimethylpyrano]--flavone (**3**).

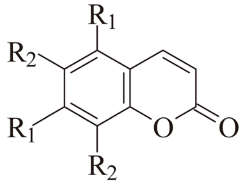
* Known compounds:
atalantoflavone (**4**), citflavanone (**5**), 4',5,7-trihydroxyflavanone (**6**), 5-methyl-tovoxanthone (**7**), auraptene (**8**), anisocoumarin B (**9**), seselin (**10**), xanthyletin (**11**), isoangenomalin (**12**), 3-(1,1-dimethylallyl)-8-hydroxy-7-methoxycoumarin (**13**), poncitrin (**14**), and clausrin (**15**).

065-4-2. 枳皮、橘皮 Constituents of the Bark of *Poncirus trifoliata* (L.) Raf. [Rutaceae]

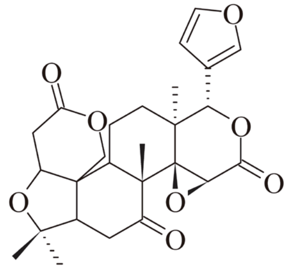
* Tao Feng, Xiao-Dong Luo et al. : *Chem. Pharm. Bull.* **58**(7) 971-945 (2010)



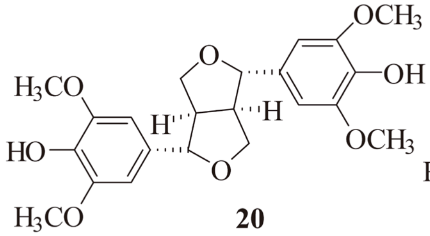
16



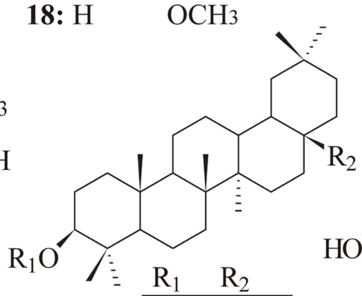
	R_1	R_2
17:	OCH_3	H
18:	H	OCH_3



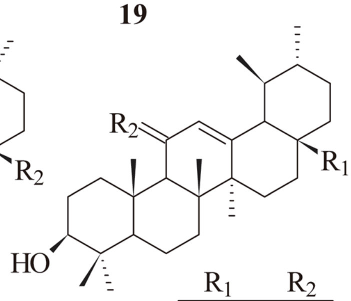
19



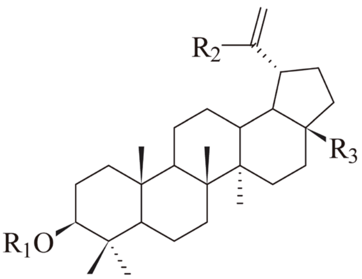
20



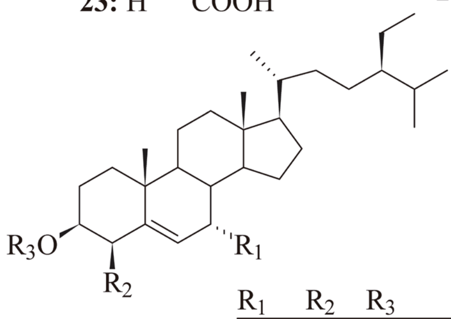
	R_1	R_2
21:	H	CH_3
22:	Ac	CH_3
23:	H	COOH



	R_1	R_2
24:	CH_3	H_2
25:	COOH	H_2
26:	CH_3	O



	R_1	R_2	R_3
27:	H	CH_3	CH_3
28:	H	CH_3	COOH
29:	Ac	CH_3	COOH
30:	H	CHO	CH_3
31:	H	CH_3	CH_2OH



	R_1	R_2	R_3
32:	H	H	H
33:	H	H	H
34:	H	OH	H
35:	OH	H	H
36:	H	H	$OC(CH_2)_{14}CH_3$

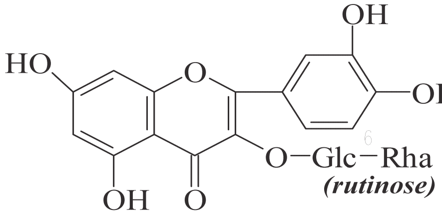
Fig. 1-2. Structures of compounds **16-36** isolated from the Bark of *Poncirus trifoliata* (L.) Raf.

* Known compoundes (Continued Fig. 1-1) :
7,8-dihydrofurocoumarin (**16**), 5,7-dimethoxycoumarin (**17**), 6,8-dimethoxycoumarin (**18**), limonin (**19**), syringaresinol **(20)**.

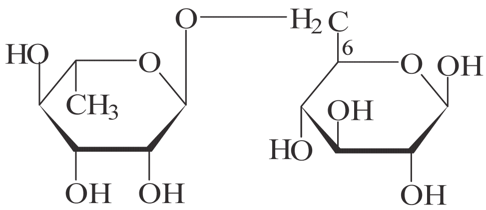
* Compounds (**21--36)** were common triterpenoids and steroids:
oleanan-3β–ol (**21**), 3-acetyl-β–amyrin (**22**), oleanolic acid (**23**), α–amyrin (**24**), ursolic acid (**25**), neoilexonol (**26**), 12-lupen-3-ol (**27**), betunilic acid (**28**), 3-acetyl-betulinic acid **(29**), 3-hydroxy-20(30)-lupen-29-al (**30**), wallichenol (**31**), β–sitosterol (**32**), stigmasta-5,22-dien-3-ol (**33**), stigmasta-5-ene-3,4-diol (**34**), stigmast-5-ene-3,7-diol **(35**), β–sitosterol palmate (**36**).

067. 槐花 Sophorae Flos

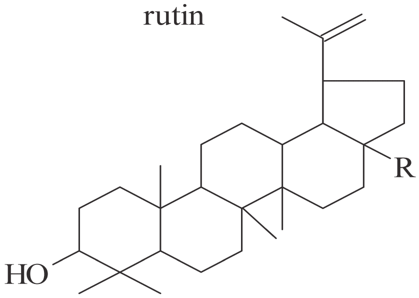
* *Sophora japonica* Linn'e [Leguminosae]



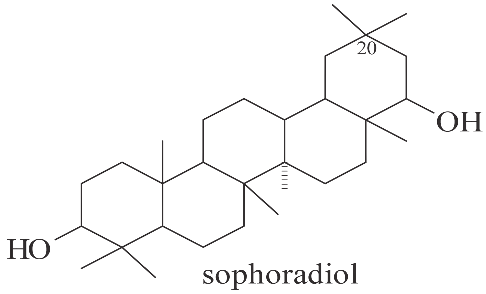
rutin



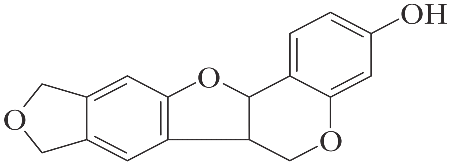
rutinose



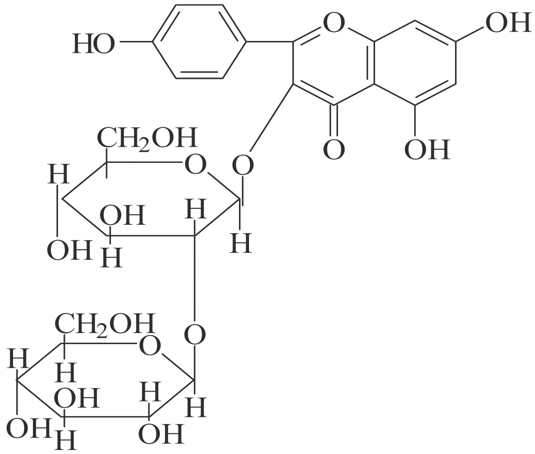
betulin R=CH_2OH
betulic acid R=COOH



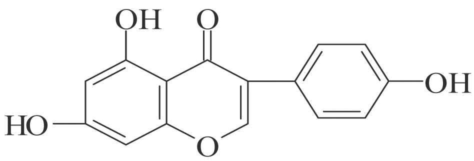
sophoradiol



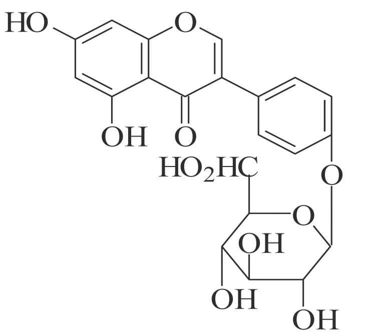
maackiain (Root)



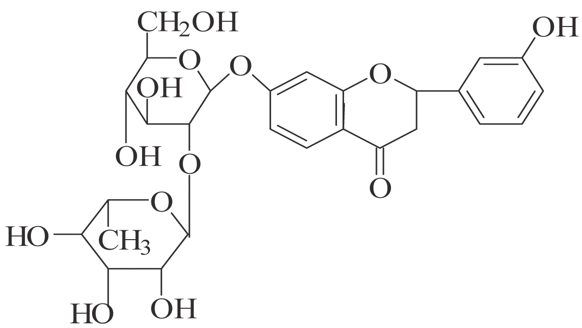
sophoraflavanoloside (Fruit)



genistein (Fruit)



sophoricoside



naringin

Fig. 1. Chemical structures of compounds

068-1. 艾葉 Artemisiae Argyi Folium

* *Artemisia argyi* Levi. et Vant. [Compositae]

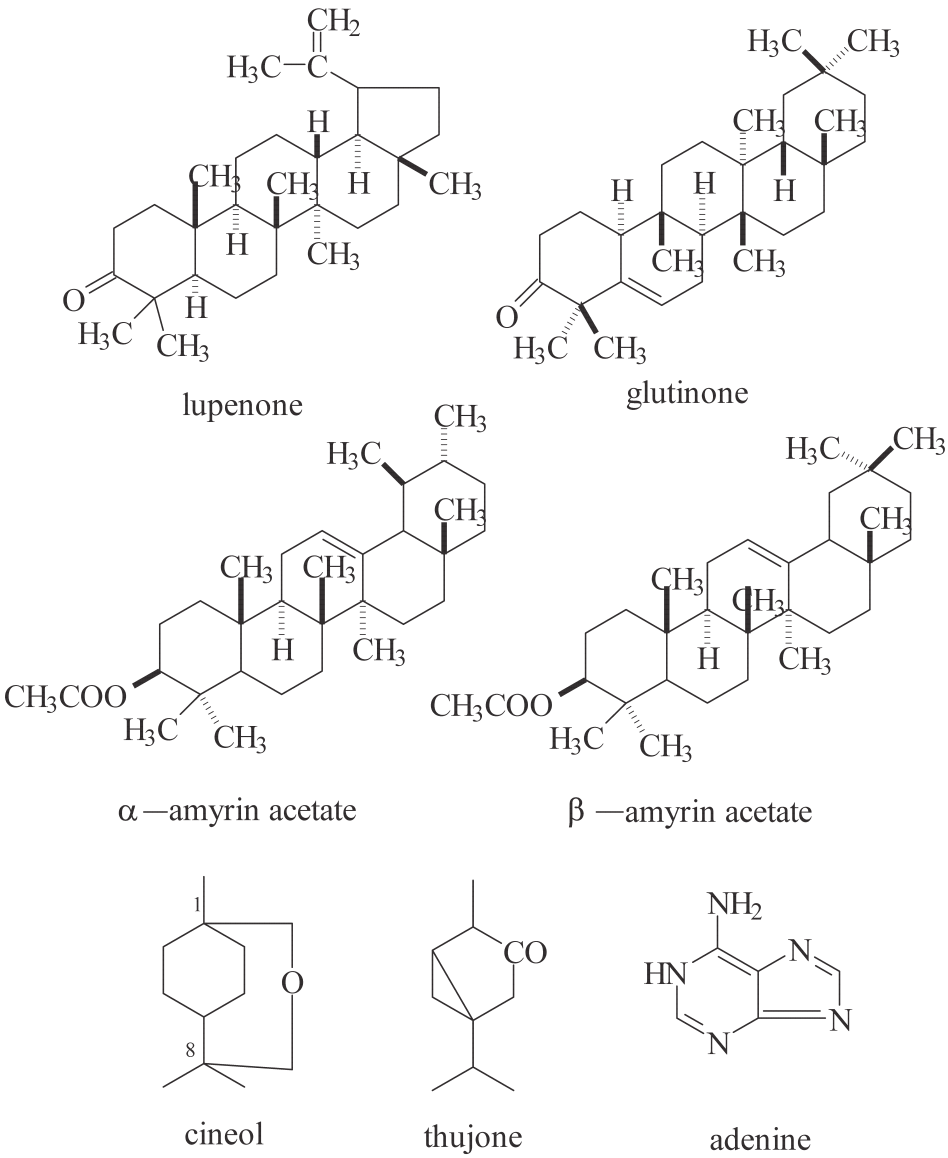
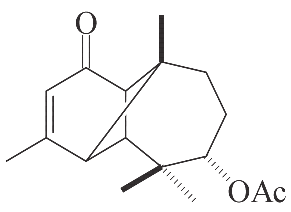


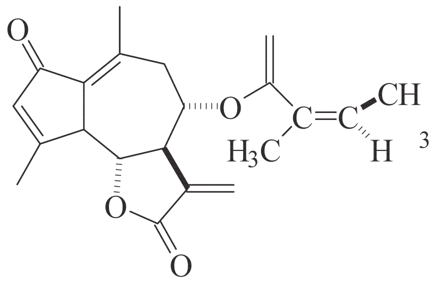
Fig. 1. Chemical structures of compounds

068-2-1. 艾葉 Artemisiae Argyi Folium

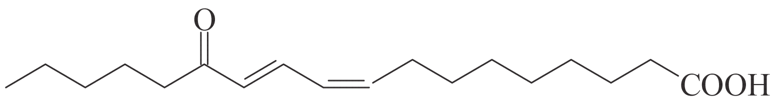
* New Sesquiterpene Ketones with Vasorelaxant Effect from Chinese Moxa, the Processed Leaves of *Artemisia argyi*,
M. Yoshikawa, H. Shimada, H. Matsuda, J. Yamahara, and N. Murakami:
Chem. Pharm. Bull. **44**(9), 1656-1662 (1996)



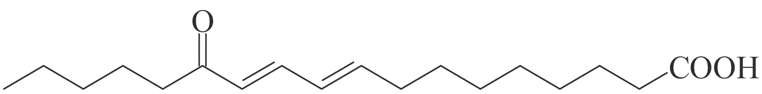
moxaartenone (**1**)



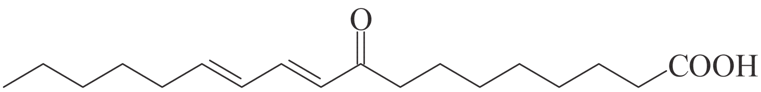
moxartenolide (**2**)



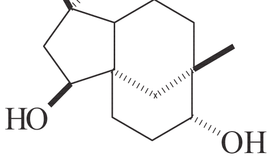
13-oxo-9(*Z*), 11(*E*)-octadecadienoic acid (**3**)



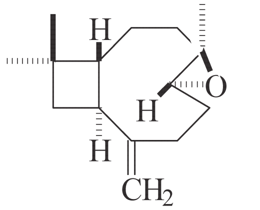
13-oxo-9(*E*), 11(*E*)-octadecadienoic acid (**4**)



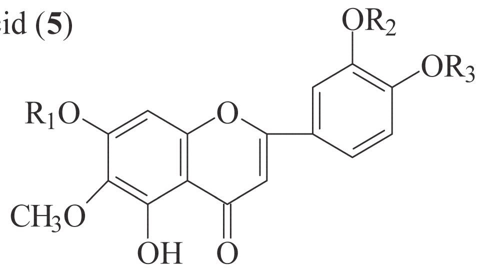
9-oxo-10(*E*), 12(*E*)-pctadecadienoic acid (**5**)



clovandiol (**6**)



caryopjullene oxide (**7**)

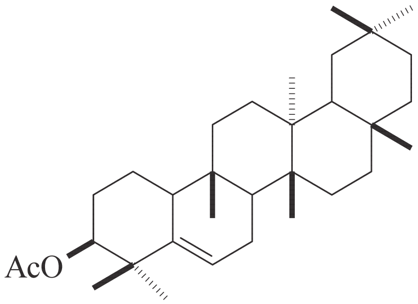


nepetin (**15**) : $R_1=R_2=R_3=H$
jasesiolin (**16**) : $R_1=H$, $R_2=CH_3$, $R_3=H$
eupatilin (**17**) : $R_1=H$, $R_2=R_3=CH_3$

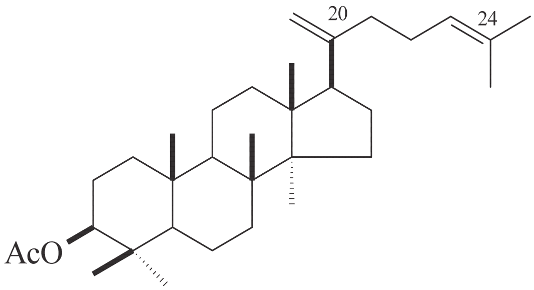
Fig. 1. Chemical structures of compounds

068-2-2. 艾葉 Artemisiae Argyi Folium

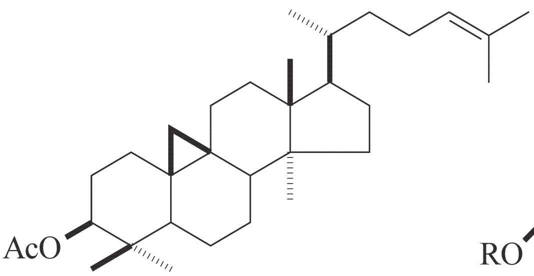
* Continued 068-2-1. Artemisiae Argyi Folium



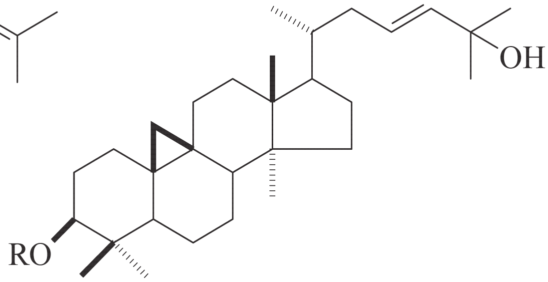
gult-5-en-3β−yl acetate (**8**)



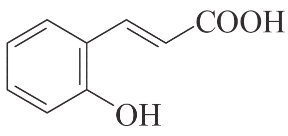
dammara-20, 24-3β−yl acetate (**9**)



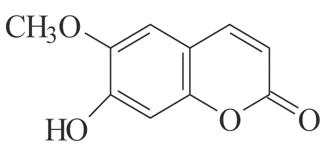
cycloartenyl acetate (**10**)



cycloart-23-ene-3β, 25−diol (1) : R=H
cycloart-23-ene-3β, 25−diol mponoacetate (**12**) : R=Ac



trans-***O***-coumaric acid (**13**)



scopoletin (**14**)

Fig. 1. Chemical structures of compounds

V-1-1. 露蜂房 Vespae Nidus: Royal Jelly

* Honeybees(*Apis mellifera*)

** Organic Acid Glycosides and Sterols

*** Tetsuya Kodai, Kazue Umebayashi, Takafumi Nakatani,Kaori Ishiyama, and Naoki Noda:*Chem. Pharm. Bull.* **55**(10), 1528-1531 (2007)

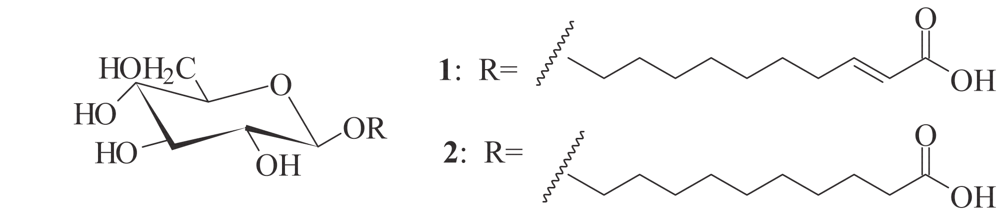


Fig. 1. Structure of Compounds **1** and **2**

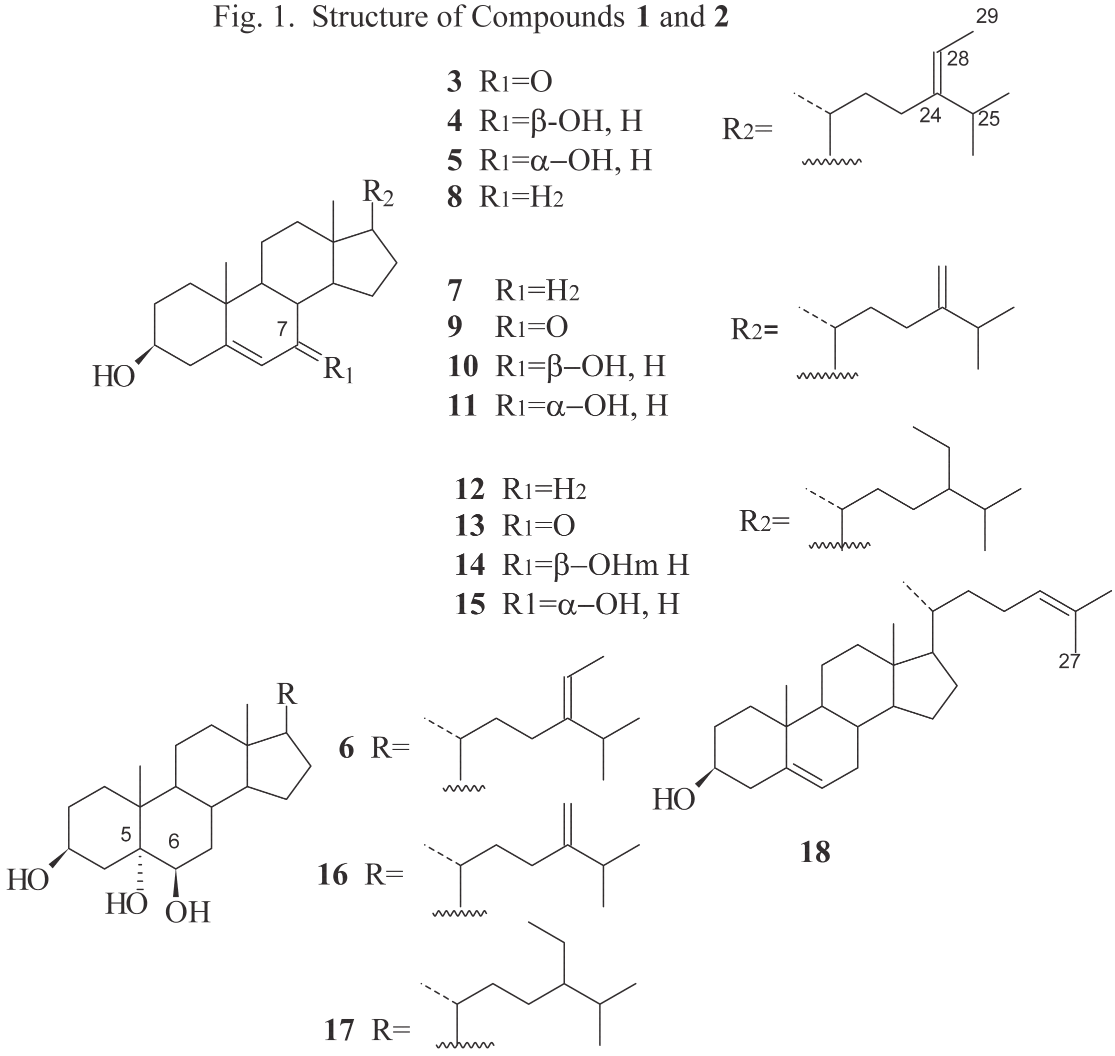


Fig. 2. Structures of Compounds **3**--**18**

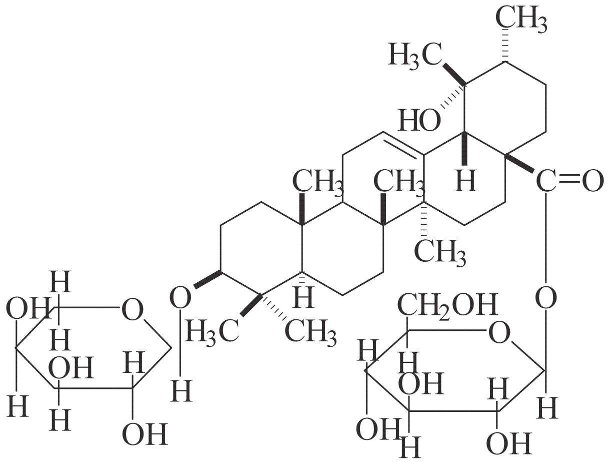
V-1-2. 露蜂房 Vespae Nidus: Royal Jelly

* Continued V-1-1: Naoki Noda et al:
Chem. Pharm. Bull. **55**(10), 1528-1531 (2007)

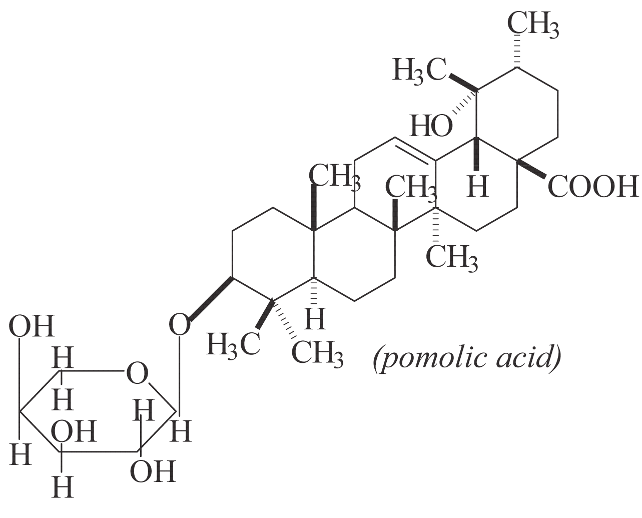
Organic acid glycosides:
1. 10-hydroxy-2*E*-decenoic acid
2. 10-hydroxydecanoic acid
Isofucosterol derivatives:
3. (24*Z*)-stigma-5,24(28)-dien-3β-ol-7-one
4. (24*Z)*-stigmasta-5,24(28)-diene-3β,7β–diol
5. (24Z)-stigmasta-5,24(28)-diene
6. (24*Z*)-stigmast-24(28)-ene-3β,5α,6β–triol
Known sterols:
7. 24-methylenecholesterol
8. isofucosterol
9. cholesta-5,24(24')-diene-3β–ol-7-one
10. cholesta-5,24(24')-diene-3β,7β–diol
11. cholesta-5,24(24')-diene-3β,7α–diol
12. β–sitosterol
13. stigmast-5-en-3β–ol-7-one
14. stigmast-5-ene-3β,7β–diol
15. stigmast-5-ene-3β,7α–diol
16. cholest-24(24')-ene-3β,5α,6β–triol
17. stigmastan-3β,5α,6β–triol
18. desmosterol

V-2-1. 地榆 Sanguisorbae Radix

* *Sanguisorba officinalis* L. [Rosaceae]



ziyu-glycoside I



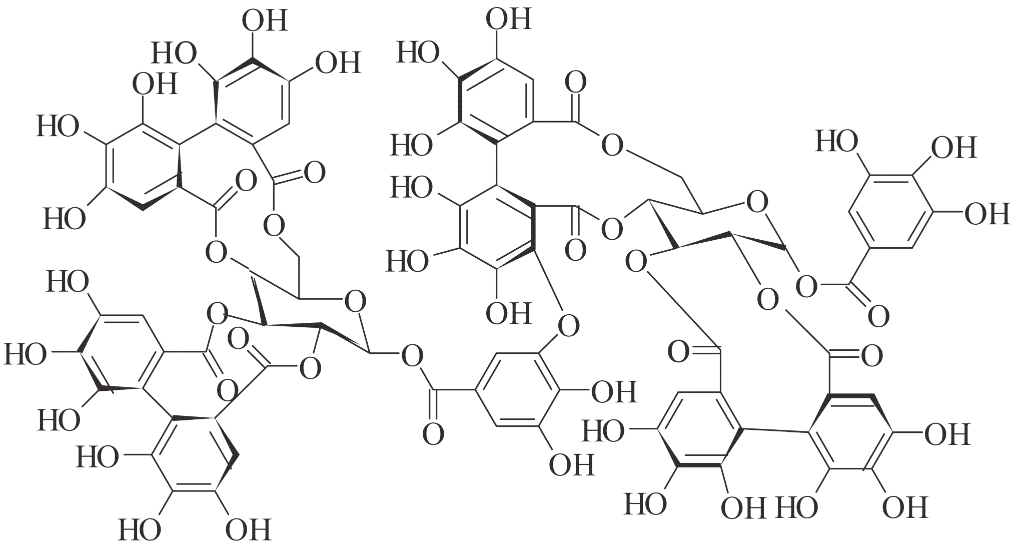
ziyu-glycoside II

Fig. 1. Chemical structures of ziyu-glycoside I and II

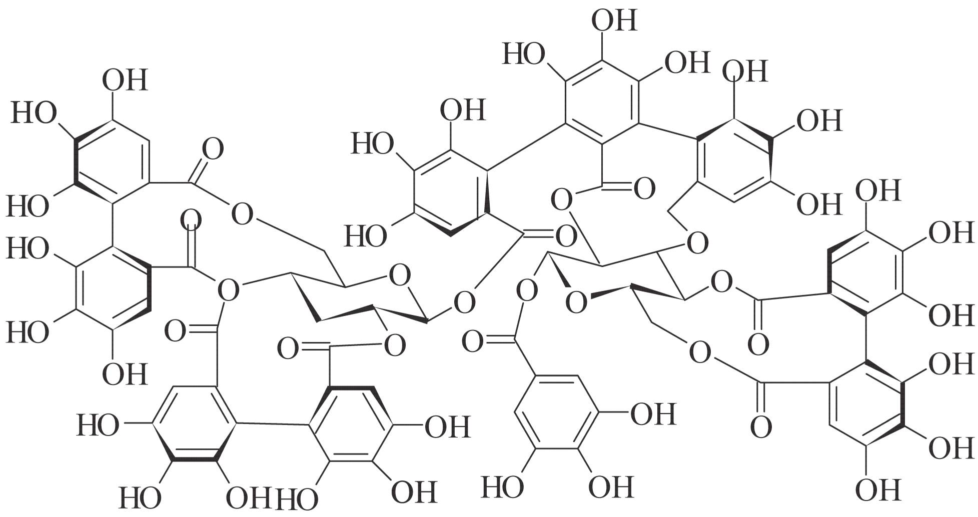
V-2-2-1. 地榆 Sanguisorbae Radix

* *Sanguisorba officinalis* L. [Rosaceae]

** Takashi Tanaka: *YAKUGAKU ZASSHI* **128**(8), 1119-1120 (2008)



sanguiin H-6 (**1**)



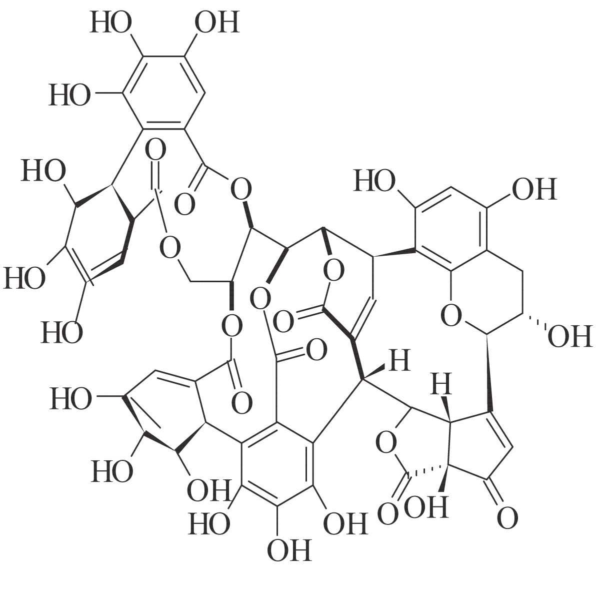
rhoipteleanin A (**2**)

Fig. 1-1. Structures of Tannins and Related Polyphenols **1--2.**

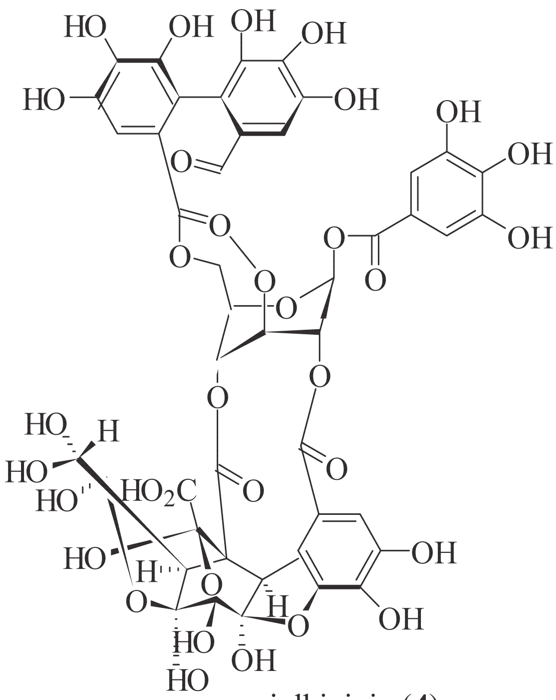
V-2-2-2. 地榆 Sanguisorbae Radix

* Takashi Tanaka: *YAKUGAKU ZASSHI,* **128**(8), 1119-1120 (2008)

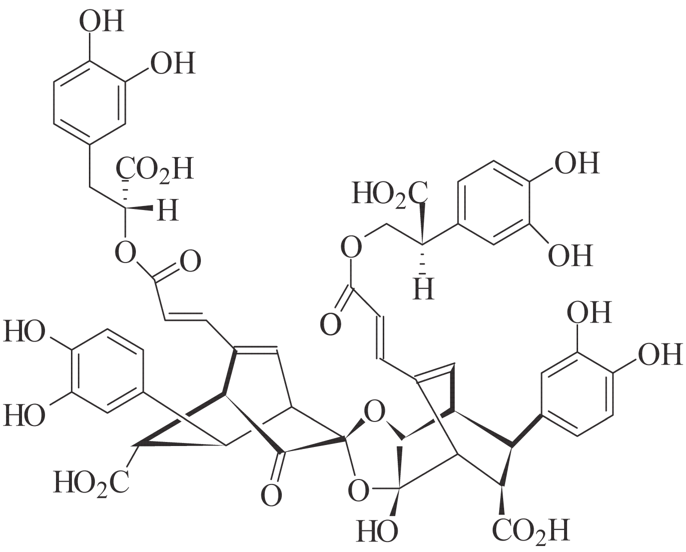
** Continued 109-1.



psiguavin (**3**)



jolkininin (**4**)



yunnaneic acid A (**5**)

Fig. 1-2. Structures of Tannins and Related Polyphenols **3--5**

VI

・消化器系疾患

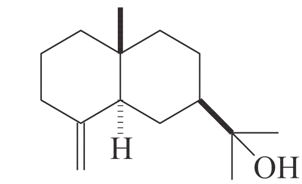
069 ~ 098

VI-1 ~VI-8

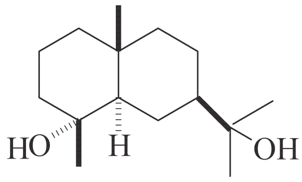
△：成分未表示

069-1-1. 厚朴 Magnoliae Cortex

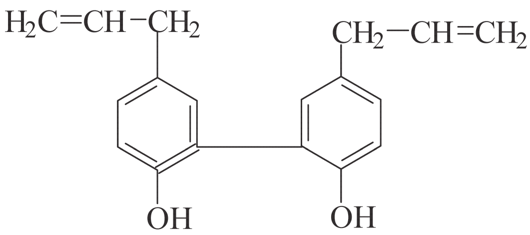
＊ *Magnolia officinalis* Rehder et Wilson [Magnoliaceae]



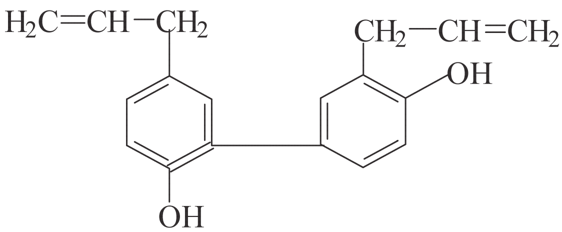
β-eudesmol (=machilol)



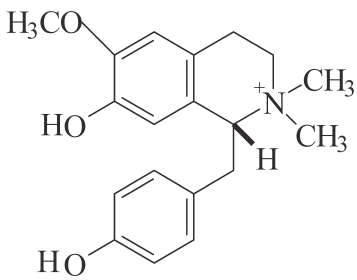
cryptomeridiol



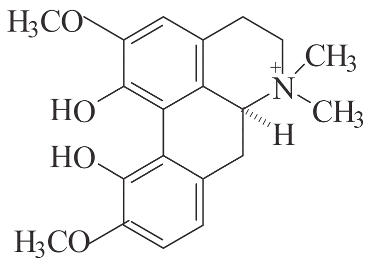
magnolol



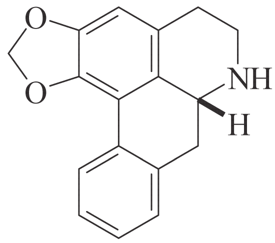
honokiol



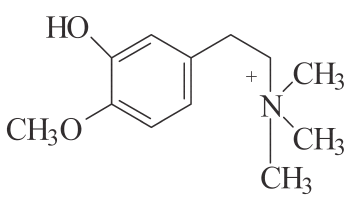
magnocurarine



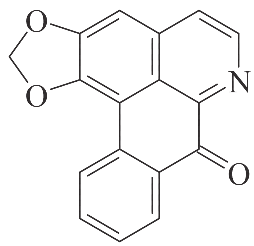
magnoflorine



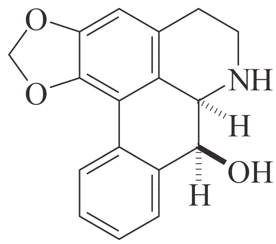
anonaine



salicifoline



liriodenine (=oxo-ushinsunine)



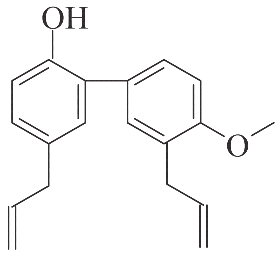
michelalbine

Fig. 1. Chemical structures of compounds

069-1-2. 厚朴 Magnoliae Cortex

* Protective effect of the ethanol extract of *Magnolia officinalis* and 4-***O*-**methylhonokiol on scopolamine-induced memory impairment and the inhibition of acetylcholinesterase activity

** Yong Kyung Lee, Dong Yeon Yuk, Tae II Kim, Young Heui Kim, Kyoung Tae Kim, Ki Ho Kim, Beom Jun Lee, Sanf-Yoon Nam, Jin Tae Hong: *J Nat Med* **63**(3) 274-282 (2009)



4-***O***-methylhonokiol

069-2-1. 和厚朴 Magnoliae Cortex

* *Magnolia obovata* Thunberg [Magnoliaceae]

** UiJoung Youn, Quan Cheng Chen, Ik Soo Lee, HongJin Kim, Jae-Kuk Yoo, JongPill Lee, MinKyun Na, Byung-Sun Min, and KiHwan Bae: *Chem. Pharm. Bull.* **56**(1), 115-117 (2008)

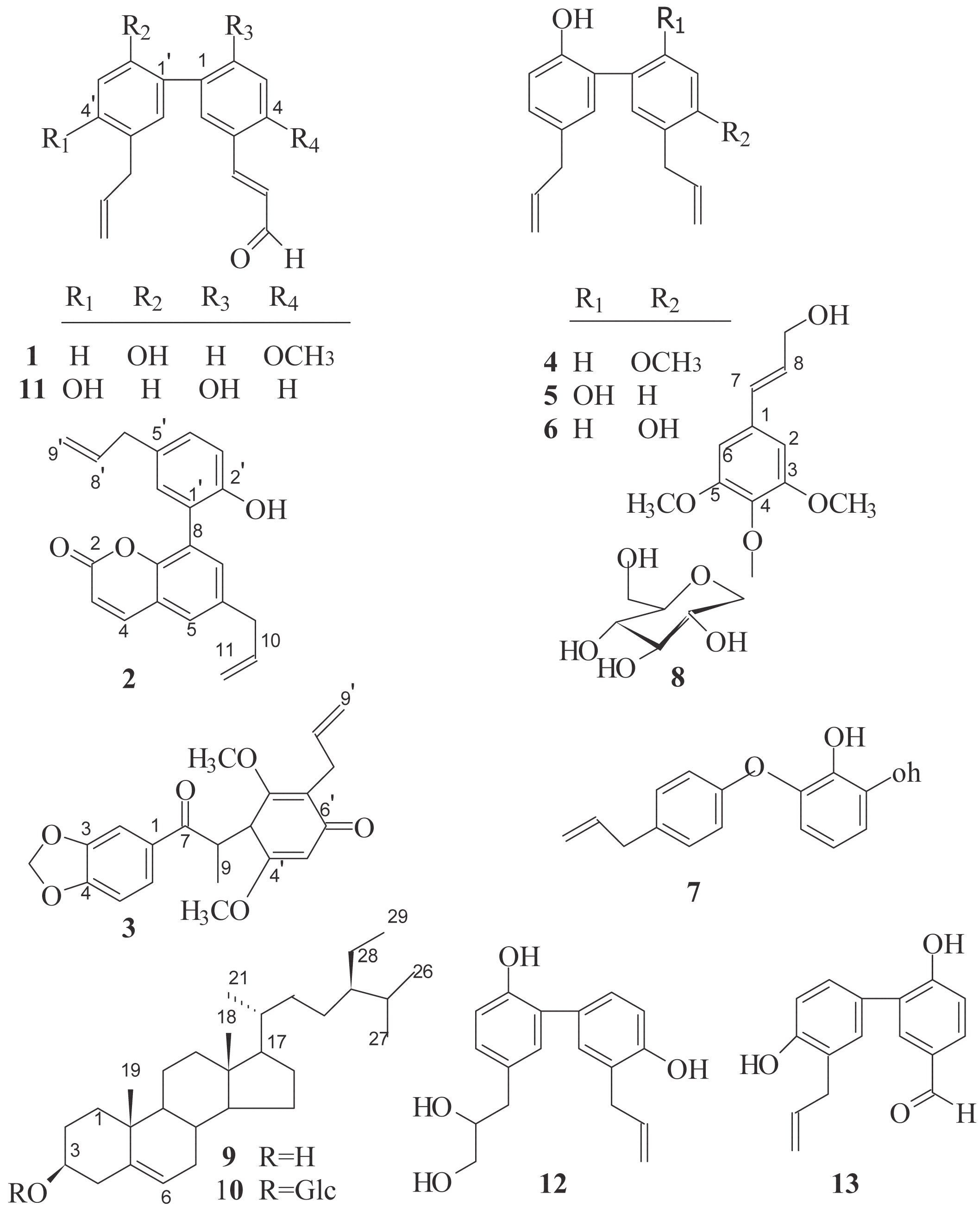


Fig. 1. Chemical Structures of Compounds **1--13** from Stem Bark of *M. obovata*

069-2-2. 和厚朴 Magnoliae Cortex

* *Magnolia obovata* Thunberg [Magnoliaceae]
** UiJoung Youn et al: *Chem. Pharm. Bull.* **56**(1), 115-117 (2008)
*** Continued 069-2-1

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* **(1): 4-methoxymagnaldehyde B**
(5'-allyl-2'-hydeoxyphenyl-4-methoxy-3 cinnamic aldehyde)
(2): coumanolignan
[6-allyl-8-(5'-allyl-2'-hydroxyphenyl)coumarin]
(3): fargesone C, (4): 4-methoxyhonokiol, (5): magnolol, (6): honokiol ,
(7): obovatol , (8): syringin, (9): β−sitosterol, (10): daucosteryl,
(11): magnaldehyde B, (12): magnolignan C, and (13): magnaldehyde E.

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070. 薄荷 Menthae Herba

* *Mentha arvensis* L. var. *piperascens* Malinvaud [Labiatae]

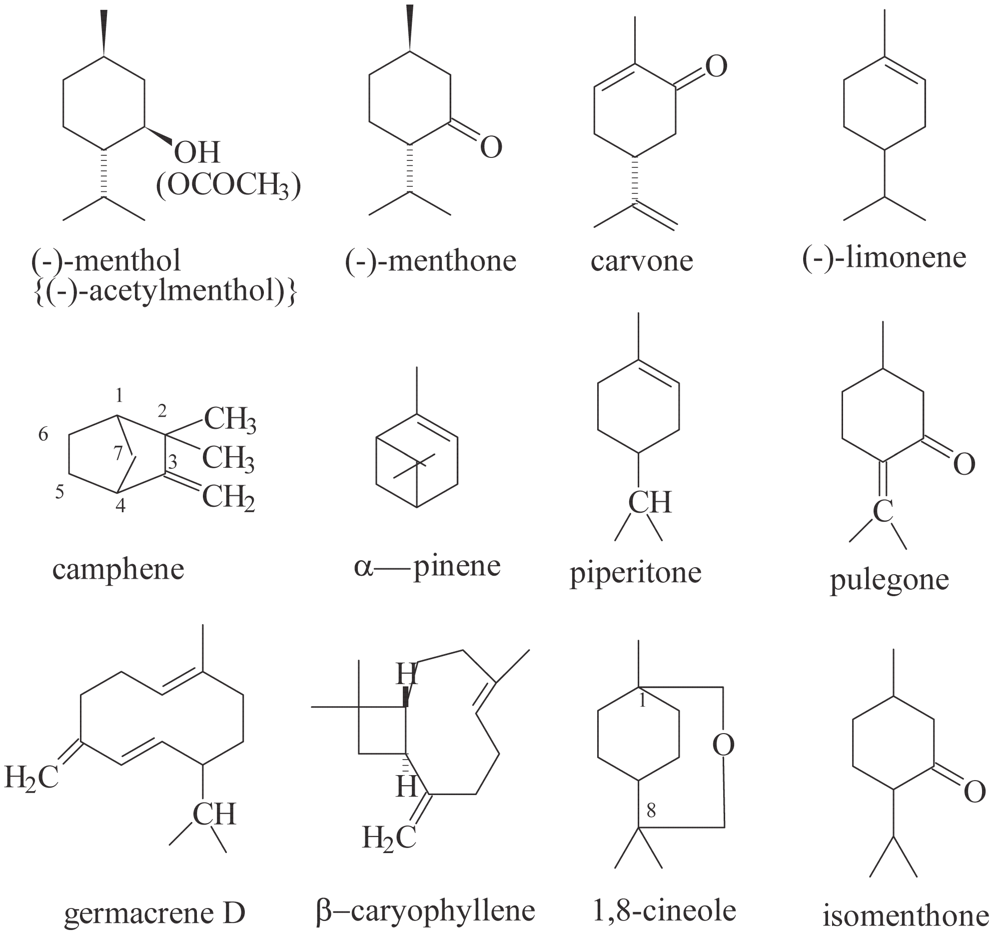
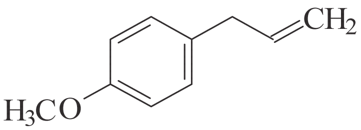
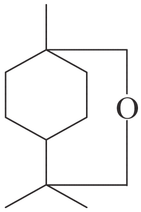


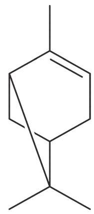
Fig. 1. Chemical structures of compounds

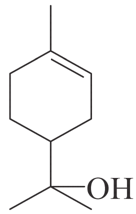
071-1. 辛夷 Magnoliae Flos

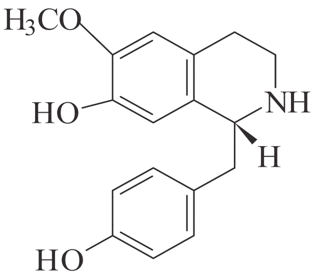
* *Magnolia fargesii* Cheng [Magnoliaceae]
M. *liliflora* Desr.
M. *salicifolia* Maxim.
M. *denudata* Desr.

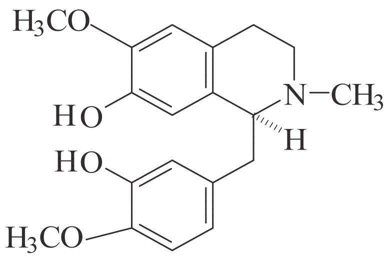

methylchavicol

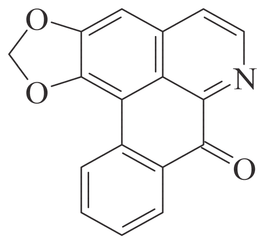

1,8-cineole

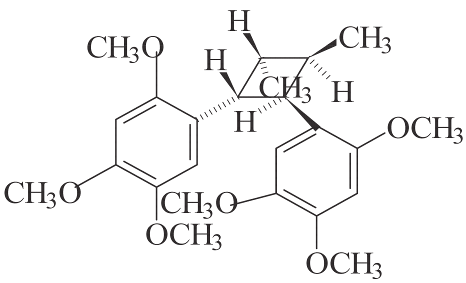

α-pinene

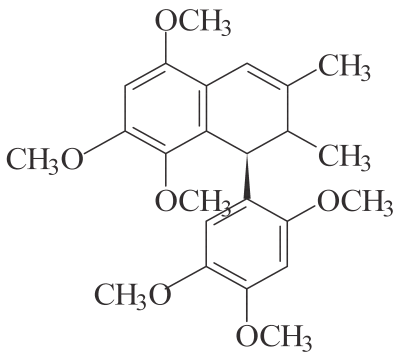

α-terpineol

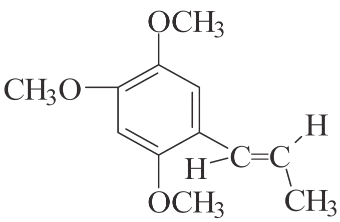

(+)-R-coclaurine


(+)-S-reticurine


liriodenine


magnosalin


magnoshinin


asarone

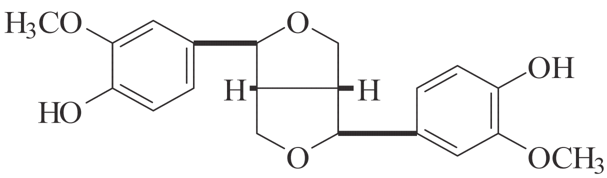
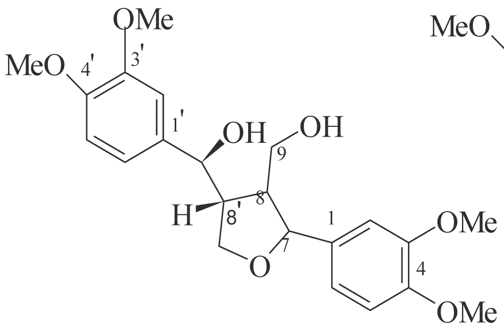

pinoresinol

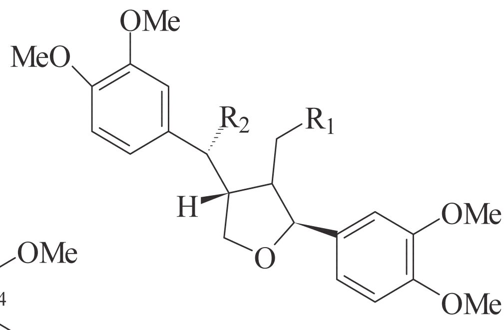
Fig. 1. Chemical structures of compounds

071-2-1. 辛夷 Magnoliae Flos

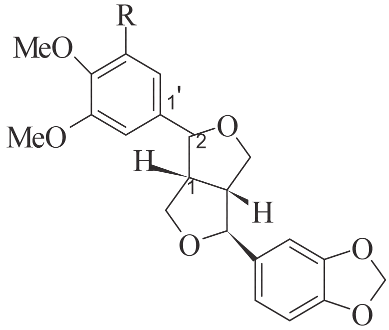
* Two New Stereoisomers of Tetrahydrofuranoid Lignans from the Flower Buds of *Magnolia faresii*:
J Lee, D Lee, D-S Jang, J-W Nam, J-P Kim, K-H Park, M-S Yang, and E-K Seo:
Chem. Pharm. Bull. **55**(1), 137-139 (2007)



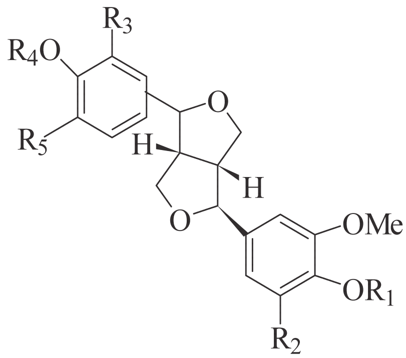
1: 7*S*,8*R*
2: 7*R*,8*S*



3: R_1=H, R_2=OH
4: R_1=OH, R_2=H



5: R=H 2*R*
6: R=H 2*S*
7: R=OMe 2*S*



	R_1	R_2	R_3	R_4	R_5
8:	H	H	OMe	H	H
9:	Me	H	H	Me	OMe
10:	Me	H	OMe	Me	OMe
11:	Me	OMe	OMe	Me	OMe

Fig. 1. Chemical structures of compounds **1--11**

***1: 7*S*,8*R*,7'*S*,*R*-3,4,3',4'-tetramethoxy-9,7'-dihydroxy-8,8',7.O,9'-lignan**
2: 7*R*,8*S*,7'*S*,8'*R*-3,4,3',4'-tetrahydroxy-9,7'-dihydroxy-8.8',7,O,9'-lignan
Known Cpd: Tetrahydrofuranoids(3,4); Tetrahydrofurofuranoids(5-11):
3. magnostellin A, 4. lariciresinol dimethyl ether, 5. fargesin, 6. kobusin, 7. aschantin, 8. pinoresinol, 9. eudesmin, 10. magnolin, 11. yangambin.

071-2-2. 辛夷 Magnoliae Flos

* Studies of the chemical constituents of the flower buds of *Magnolia kobus* and *M. salicifolia*

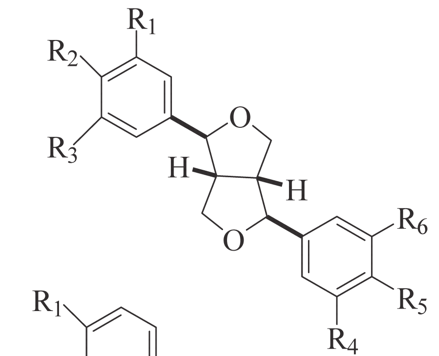
** Jun Li, Makoto Tanaka, Katsuki Kurasawa, Tsuyoshi Ikeda, Toshihiro Nohara: *J Nat Med,* **61**(2), 222-223 (2007)

*** <u>Compound K-1 to K-9:</u>

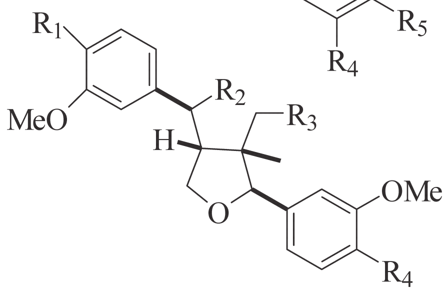
(+)-kobusin, (+)-sesamin, (+)-eudesmin, (+)-lirioresnol-β–dimethyl ether, (+)-lariciresinol, (-)-aschantin, *dl*-magnolin, kobusinol B and 9'-***O***-acetylfargesol.

<u>Compound S-1 to S-9:</u>

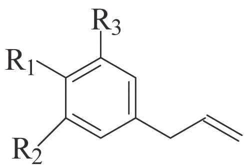
(+)-pinoresinol, allyl catechol, safrol, myristicin, eugenol methyl ether, coniferyl alcohol 4-methyl ether, 3.4-methylenedioxy cinnamomyl alcohol, 3,4-methylenedioxy-5-methoxyl cinnamomyl alcohol, and isosafrol glycol.

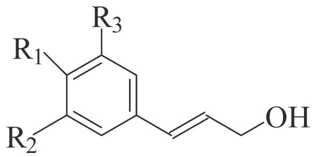


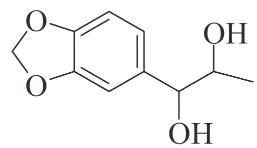
	R_1	R_2	R_3	R_4	R_5	R_6
K-1	H	-O-CH_2-O-		H	OMe	OMe
K-2	H	-O-CH_2-O-		H	-O-CH_2-O-	
K-3	H	-O-CH_2-O-		OMe	OMe	OMe
K-4	H	OMe	OMe	H	OMe	OMe
K-6	OMe	OMe	OMe	H	OMe	OMe
K-7	OMe	OMe	OMe	OMe	OMe	OMe
S-1	H	OH	OMe	OMe	OH	H



	R_1	R_2	R_3
K-5	OH	H	OH
K-8	OMe	OH	OAc
K-9	OMe	OH	OH







S-9: isosafrpl glycol

	R_1	R_2	R_3
S-2	OH	OH	H
S-3	-O-CH_2-O-		H
S-4	-O-CH_2-O-		OMe
S-5	OMe	OMe	H

	R_1	R_2	R_3
S-6	OMe	OMe	H
S-7	-O-CH_2-O-		H
S-8	-O-CH_2-O-		OMe

Fig. 1. Chemical structures of compounds

071-3. 辛夷 Magnoliae Flos

* Two New Stereoisomers of Neolignan and Lignan from the Flower Buds of *Magnolia fargesii* Cheng [Magnoliaceae]

** Jun Lee, Eun-Kyoung Seo, Dae Sik Jang, Tae Joung Ha, Jong-Pyung Kim, Joo-Won Nam, Green Bae, Yun Mi Lee, Min Suk Yang, and Jin Sook Kim:
Chem. Pharm. Bull. **57**(3) 298-301 (2009)

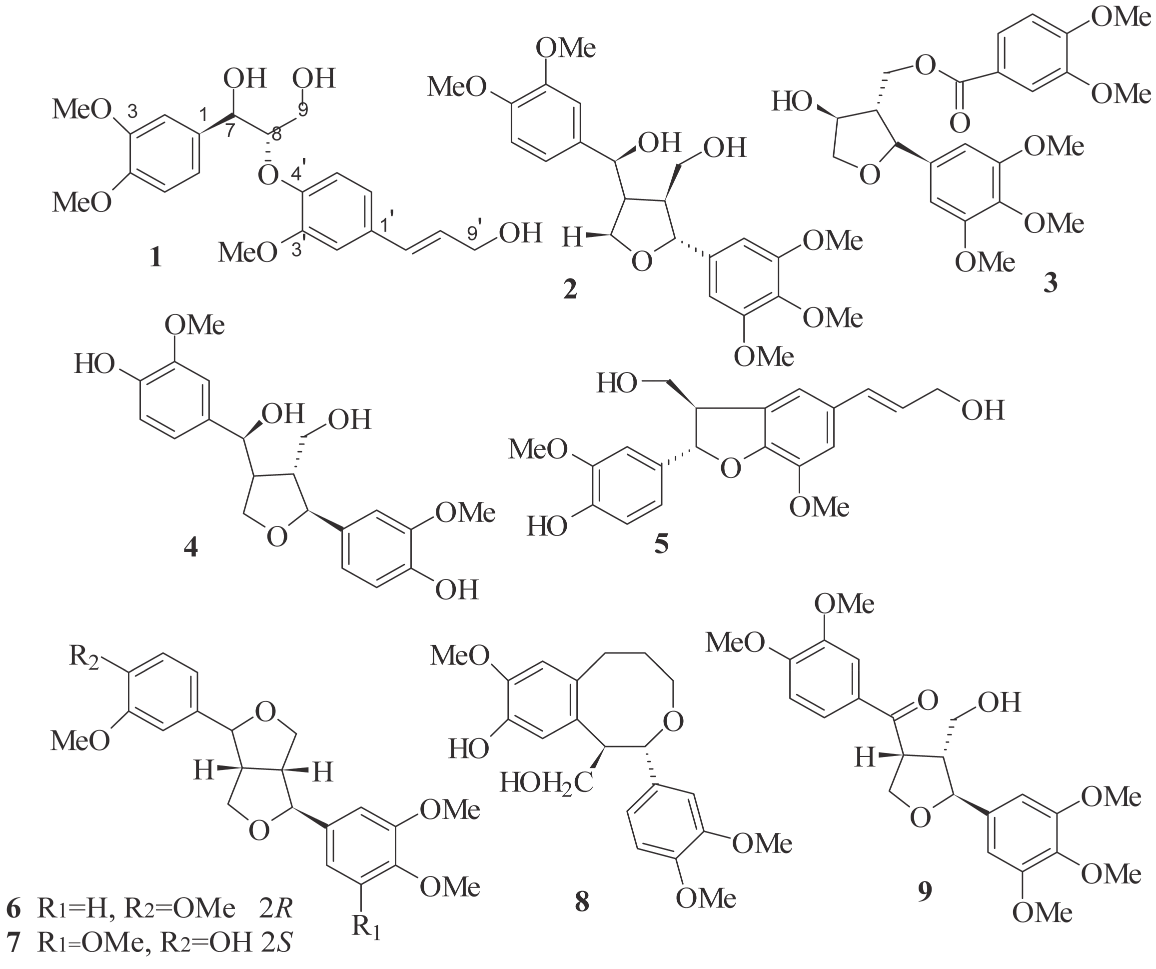


Fig. 1. Structures of Compounds **1--9** from the Flower Buds of *Magnolia fargesii* Cheng [Magnoliaceae]

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* A new stereoisomer of 8-***O***-4' system neolignan:
(1) (7*R*,8*S*)-1-(3,4-dimethoxyphenyl)-2-[4-(3-hydroxy-1-propenyl)-2-methoxyphenoxyl]-propane-1,3-diol

A new stereoisomer of tetrahydrofuranoid lignan:
(2) (7*R*,8*S*,7'*S*,8'*R*)-(3,4,5,3',4')-pentamethoxy-9,7'-dihydroxy-8.8',7.***O***.9'-lignan

* (**3**) (7*S*,8*S*,10*S*)-[tetrahydro-4-hydroxy-2-(3,4,5-trimethoxyphenyl)furan-3-yl]-3,4-dimethoxy benzoate,
(**4**) tanegool, (**5**) (+)-dehydrodiconiferyl alcohol, (**6**) epicatechin,
(**7**) (+)-de-***O***-methyl magnolin, (**8**) biondinin A and (**9**) magnone B.

072-1. 茴香 Foeniculi Fructus

* *Foeniculum vulgare* Miller [Umbelliferae]

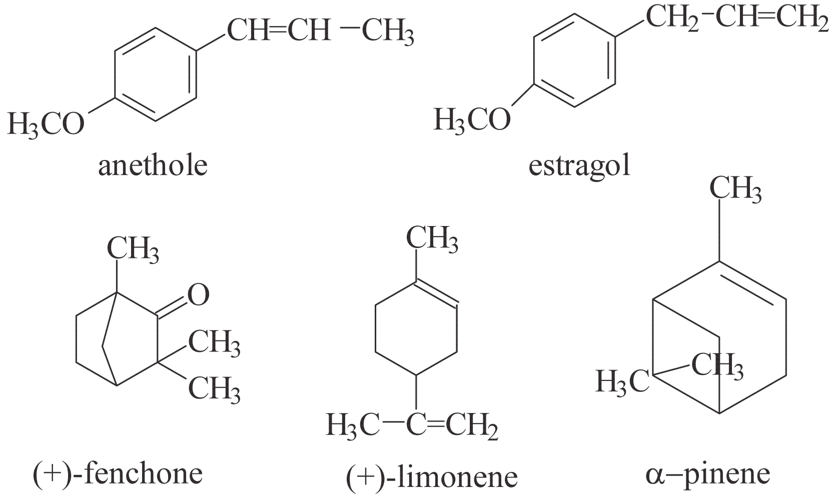
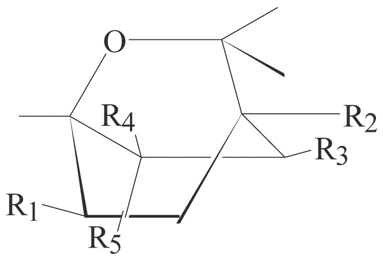


Fig. 1. Chemical structures of compounds

072-2. 茴香 Foeniculi Fructus

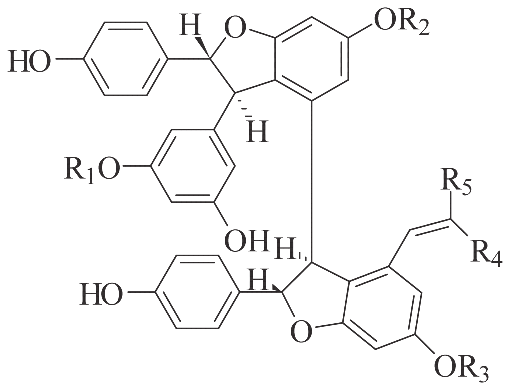
* Masateru Ono: *Natural Medicines* **57**(4), 127-132 (2003)

1) Monoterpenoid Glycoside:



	R_1	R_2	R_3	R_4	R_5
50:	OGlc	OH	H	H	H
51:	H	OH	H	H	OGlc
52:	H	OGlc	H	H	OH
53:	OGlc	H	H	OH	H
54:	OGlc	H	OH	H	H

2) Oligostilbenoid Glycoside:



	R_1	R_2	R_3	R_4	R_5
55:	Glc	H	H	Phe	H
56:	H	Glc	H	Phe	H
57:	Glc	Glc	H	Phe	H
58:	Glc	Glc	Glc	Phe	H
59:	H	H	H	Phe	H
60:	H	H	H	H	Phe

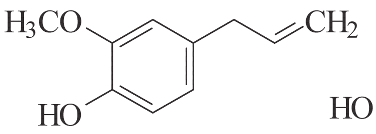
Phe: 4-hydroxyphenyl

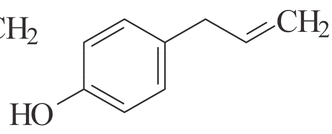
Fig. 1. Chemical structures of compounds

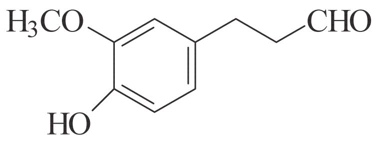
* Ono M et al : *Chem.Pharm.Bull.,* **43**, 868-871 (1995); **44**, 337-342 (1996); *Food Sci, Technol, Int.Tokyo,* **3**, 53-55 (1997); Nishioka et al ; *Chem. Pharm. Bull.,* **33**, 5079-5082 (1985)

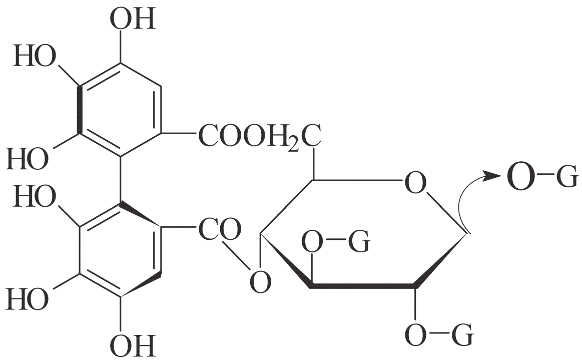
073-1. 丁香 Caryophylli Flos

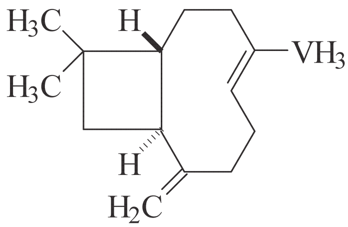
* *Syzygium aromaticum* (L.) Mere et Perry [Myrtaceae]
(=*Eugenia caryophyllata* Thunb. or *E. aromatica* Baill.)

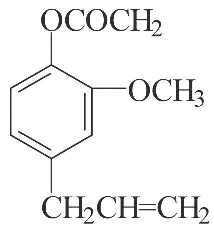

eugenol

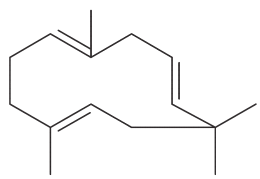

chavicol

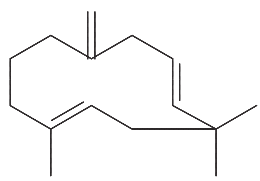

vanillin

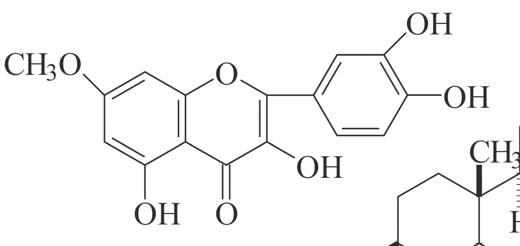

eugenin G:galloyl

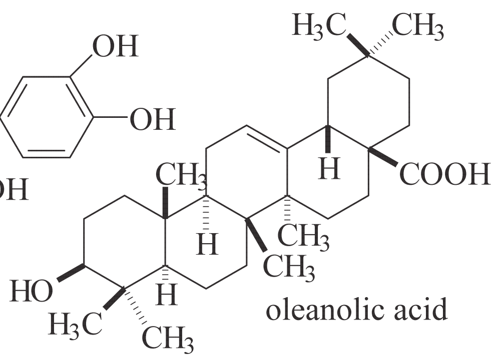

β—caryophyllene


acetyleugenol


α–humulene


β–humulene


rhamnetin


oleanolic acid

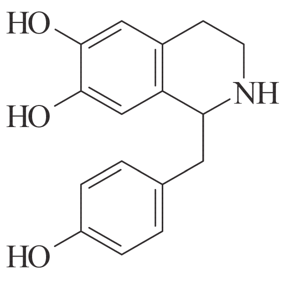
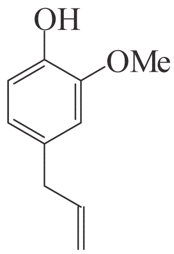

higenamine

Fig. 1. Chemical structures of compounds

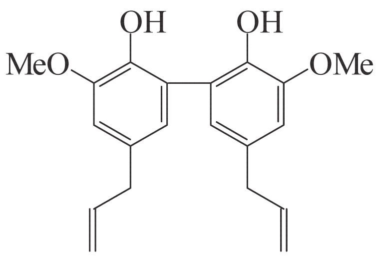
073-2. 丁香 Caryophylli Flos

* Hypoglycemic effect of Clove (*Syzygium aromaticum* flower buds) on genetically diabetic KK-Ay mice and identification of the active ingredients

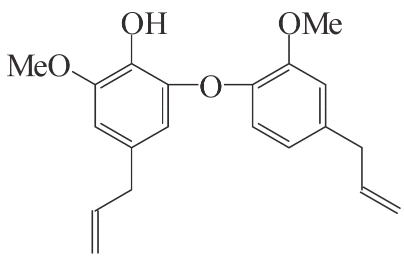
** Minpei Kuroda, Yoshihiro Mimaki, Takayuki Ohtomo, Junji Yamada, Tozo Nishiyama, Tatsumasa Mae, Hideyuki Kishida, Teruo Kawada:
J Nat Med **66**(2) 394-399 (2012)



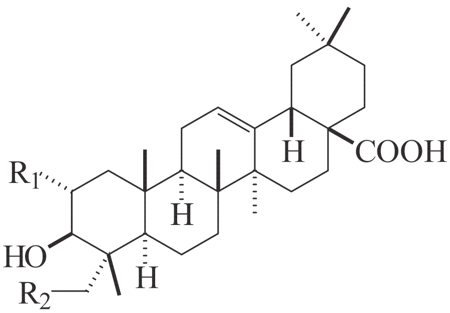
1 eugenol



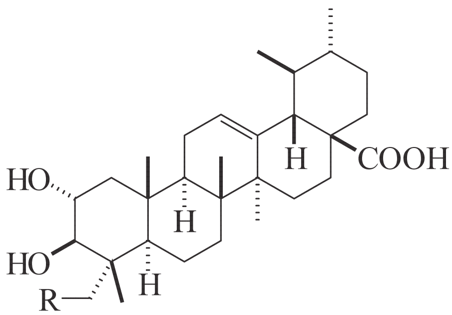
2 dehydrodieugenol



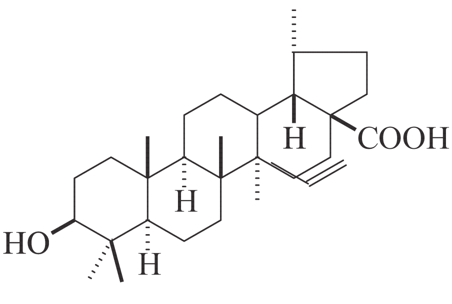
3 dehydrodieugenol B



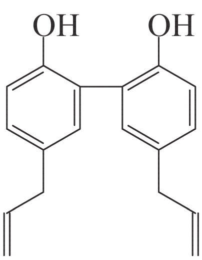
	R_1	R_2	
4	H	H	oleanolic acid
5	OH	OH	arjunolic acid



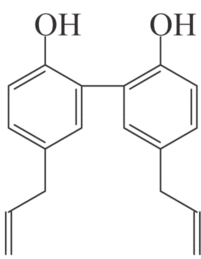
	R	
6	H	corosolic acid
7	OH	asiatic acid



8 betulinic acid



magnolol

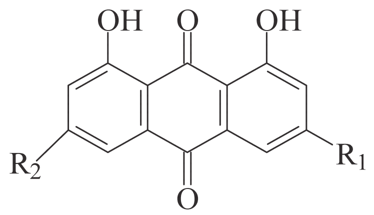


honokiol

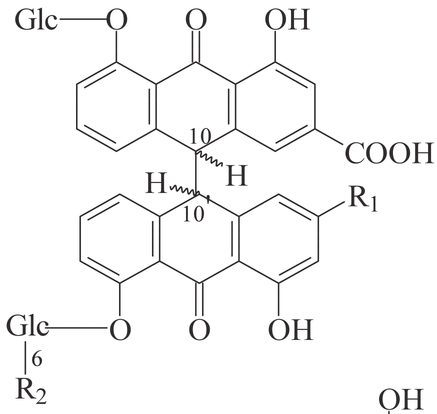
Fig. 1. Structures of compounds **1**--**8** , magnolol, and honokiol

074-1. 大黄 Rhei Rhizoma

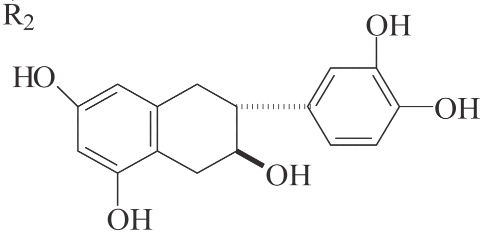
* *Rheum palmatum* Linn'e [Polygonaceae]
R. *tanguticum* Maximowicz
R. *officinale* Baillon



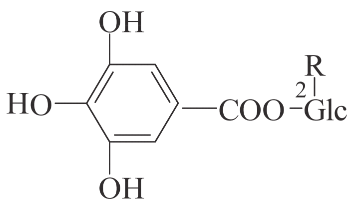
	R_1	R_2
chrysophanol	CH_3	H
emodin	CH_3	OH
aloe emodin	CH_2OH	H
rhein	COOH	H
physcion	CH_3	OCH_3



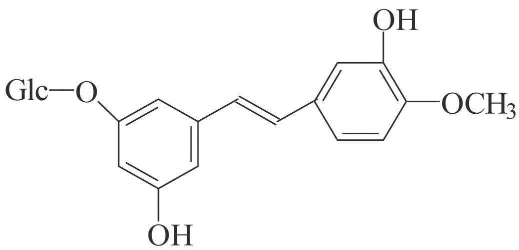
	R_1	R_2	$C_{10\_10'}$
sennoside A	COOH	H	*threo(t)*
sennoside B	COOH	H	*erythro(e)*
sennoside C	CH_2OH	H	*t*
sennoside D	CH_2OH	H	*e*
sennoside E	COOH	HOOC –CO–	*t*
sennoside F	COOH	HOOC –CO–	*e*



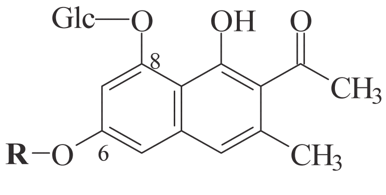
(+)-catechin



glucogallin : R=H
2'-***O***-cinnamoylglucogallin R=OC−CH=CH.C_6H_5



rhaponticin

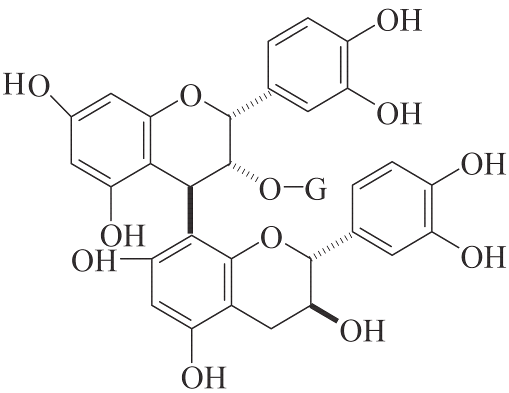


torachrysone-8-glucoside R=CH_3
6-hydroxymusizin R=H

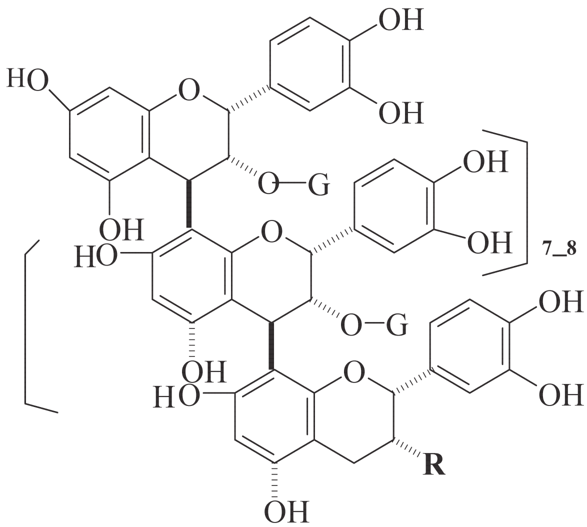
Fig. 1. Chemical structures of compounds

074-2. 大黄 Rhei Rhizoma

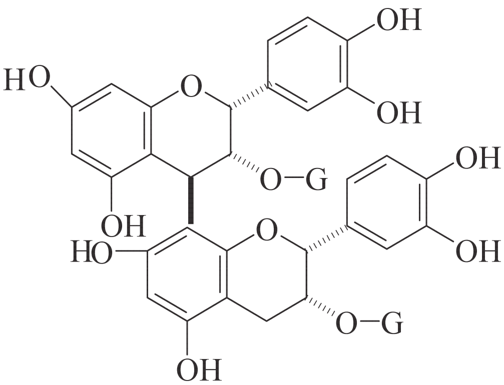
* *Rheum palmatum* L.
R. tanguticum Maxim.
R. officinale Baill. [Polygonaceae]



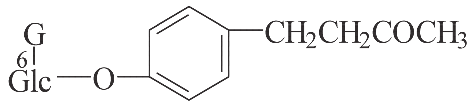
procyanidin B-1, 3-***O***-gallate



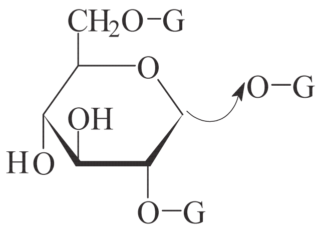
rhatannin I R= ''''''O−G
rhatannin II R=━OH



procyanidin B-2, 3, 3'-di-***O***-gallate



lindleyin



1, 2, 6-tri-***O***-galloyl-glucose

*** G:galloyl**

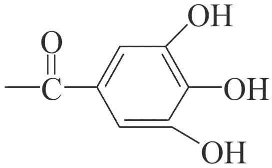
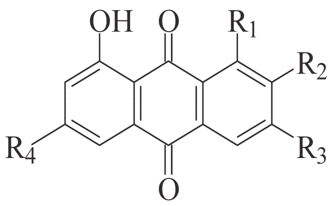


Fig. 1. Chemical structures of compounds

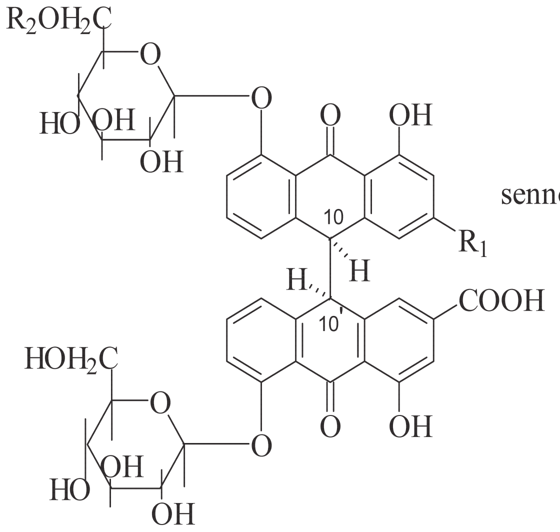
074-3. 大黃 Rhei Rhizoma

* Quantitative Analysis of the Laxative Components in Rhubarb by HPLC Chromatogrphy

** H. Oshio and N. Kawamura:
Shoyakugaku Zasshi, **39**(2), 131-138 (1985)



	R_1	R_2	R_3	R_4
chrysophamol	OH	H	CH_3	H
physcion	OH	H	CH_3	OCH_3
emodin	OH	H	CH_3	OH
aloe-emodin	OH	H	CH_2OH	H
citreorosein	OH	H	CH_2OH	OH
rhein	OH	H	COOH	H
laccaic acid D	CH_3	COOH	OH	OH



	R_1	R_2	10-10'
sennoside A	COOH	H	*threo*
B	COOH	H	*erythreo*
C	CH_2OH	H	*threo*
D	CH_2OH	H	*erythreo*
E	COOH	OC −COOH	*threo*
F	COOH	OC −COOH	*erythreo*

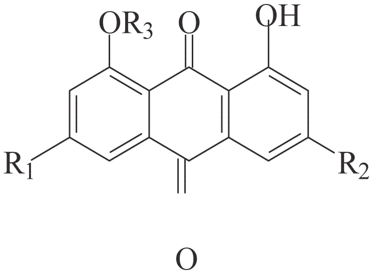
Fig. 1. Structure of Oxyanthraquinone and Sennoside in Rhubarb

074-4-1. 大黄 Rhei Rhizoma

*Development of High Performance Liquid Chromatographic Method from Systematic Quantitative Analysis of Chemical Constituents in Rhubarb:

** Katsuko Komatsu, Yorinobu Nagayama, Ken Tanaka, Yun Ling, Purusotam Basnet, and Meselhy Ragab Meselihy:

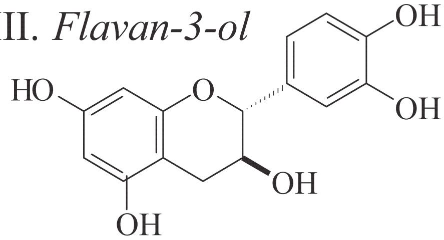
Chem Pharm Bull, **54**(7), 941-947 (2006)



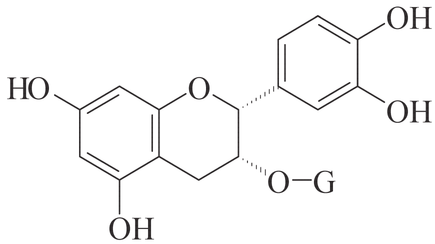
I. *Anthraquinones*

		R_1	R_2	R_3
1	chrysophanol	H	CH_3	H
2	emodin	OH	CH_3	H
3	aloe-emodin	H	CH_2OH	H
4	rhein	H	COOH	H
5	physcion	OCH_3	CH_3	H

III. *Flavan-3-ol*



17 (-)-catechin



18 (-)-epicatechin 3-***O***-gallate

II. *Anthraquinone glucosides*

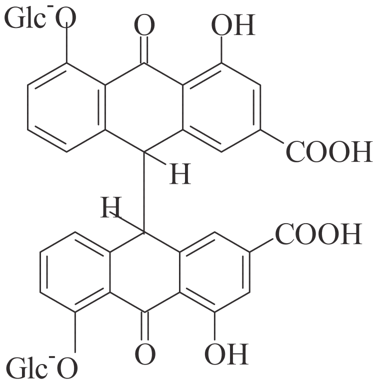
		R_1	R_2	R_3
6	chrysophanol 8-***O***-β–**D**-glucopyranoside	H	CH_3	Glc
7	emodin 8-***O***-β–**D**-glucopyranoside	OH	CH_3	Glc
8	aloe-emodin 8-***O***-β–**D**-glucopyranoside	H	CH_2OH	Glc
9	rhein 8-***O***-β–**D**-glucopyranoside	H	COOH	Glc
10	physcion 8-***O***-β–**D**-glucopyranoside	OCH_3	CH_3	Glc

Fig. 1-1. Chemical structures of compounds

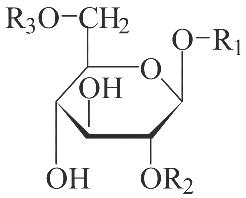
074-4-2. 大黄 Rhei Rhizoma

*Continued 074-4-1

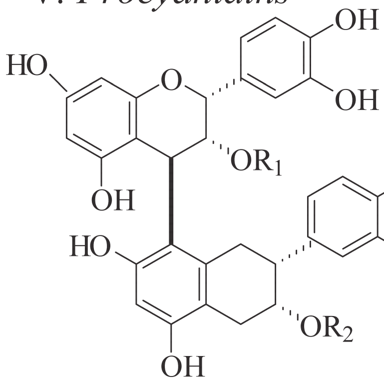
IV. *Dianthrones*



11 sennoside A (10,10'-*trans*)
12 sennoside B (10,10'-*meso*)

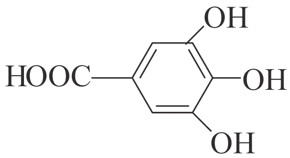


V. *Procyanidins*



19 procyanidin B-2 3'-***O***-gallate (R_1=H, R_2=G)
20 procuanidin B-2 3, 3'-di-***O***-gallate(R_1=R_2=G)

VIII. *Phenol carboxylic acid*



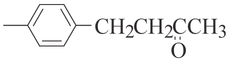
28 gallic acid

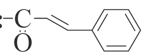
VI. *Phenylbutanones*

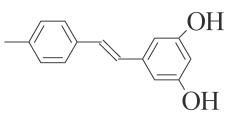
	R_1	R_2	R_3
13 lindleyin	L	H	G
14 isolindleyin	L	G	H

VII. *Stilbenes*

	R_1	R_2	R_3
15 resveratrol 4'-***O***-β−D-glucopyranoside	S	H	H
16 resveratrol 4'-***O***-β−D-(6''-***O***-galloyl)-glucopyranoside	S	H	G

L: 

C: 

S: 

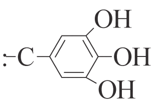
G: 

Fig. 1-2. Chemical structures of compounds

074-4-3. 大黄 Rhei Rhizoma

*Continued 074-4-2

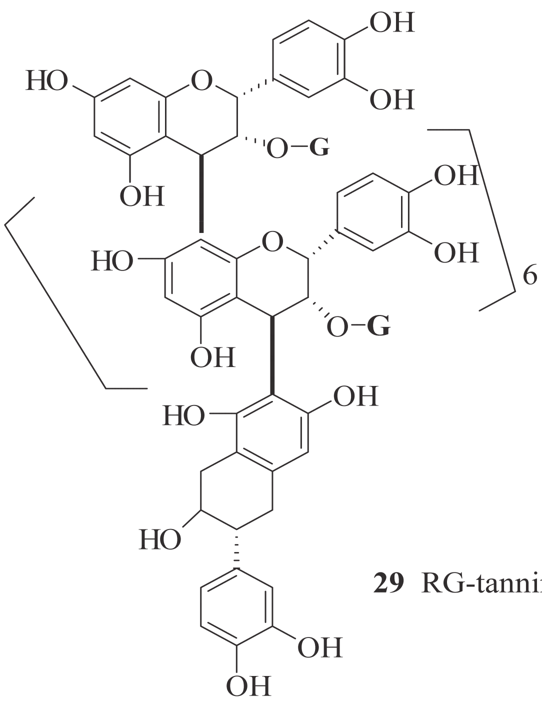
IX. *Galloylglucoses*

		R1	R2	R3
21	1-***O***-Galloyl-β–**D**-glucose	H	G	H
22	8-***O***-Galloyl-β–**D** glucose	H	H	G
23	1,6-Di-***O***-galloyl-β–**D**-glucose	G	H	G
24	1,2,6-Tri-***O***-galloyl-β–**D**- glucose	G	G	G

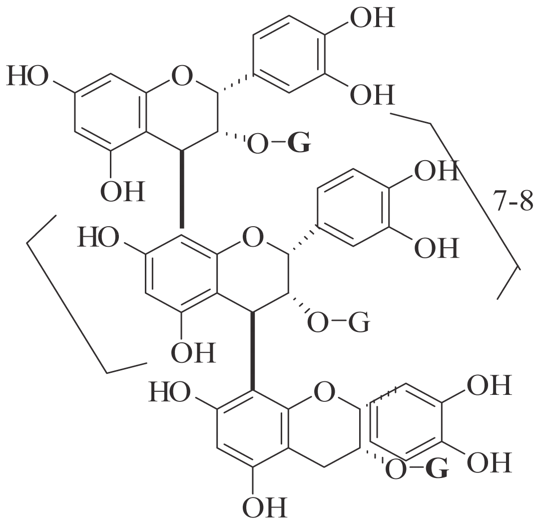
X. *Acylglucoses*

		R1	R2	R3
25	1-***O***-Galloyl-2-***O***-cinnamoyl-β–**D**-glucose	G	C	H
26	1,6-Di-***O***-Galloyl--2-***O***-cinnamoyl-β–**D**-glucose	G	C	G
27	1,2,-Di-***O***-Galloyl-6-***O***-cinnamoyl-β–**D**-glucose	G	G	C

XI. *Polymeric procyanidins*



29 RG-tannin



30 Rhatannin

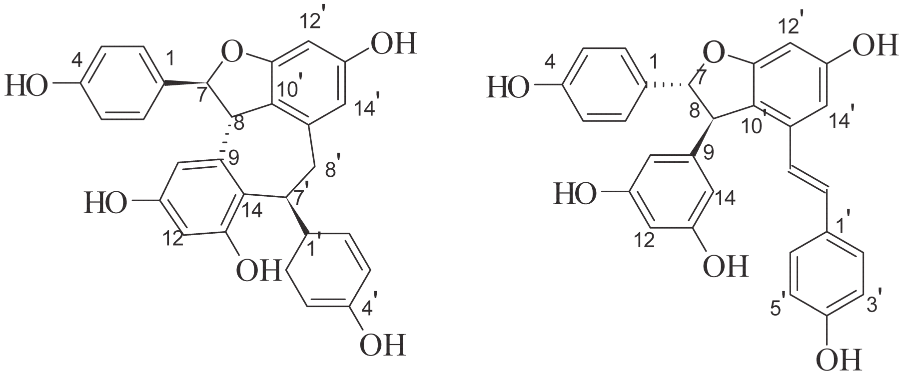
Fig.1. Structures of **30** Compounds Used for Quantitative Determination

* Katsuko Komatsu, Yorinobu Nagayama, Ken Tanaka, Yun Ling, Shao-Qing Cai, Takayuki Omote, and Meselhy Ragab Meselhy:
Comparative Study of Chemical Constituents of Rhibarb from Different Origins, *Chem. Pharm. Bull.* **54**(11), 1491-1499 (2006)

074-5. 大黄 Rhei Rhizoma

* Oligostilbenes from Rhubarb: *Rheum undultum* L., *R. palmatum* L., *R. tanguticum* Maxim., *R. officinale* Baill., and *R. coreanum* Nakai

** Tran Minh Ngoc, Tran Manh Hung, Phuong Thien Thuong, MinKyun Na, HongJin Kim, Do Thi Ha, Byung-Sun Min, Pham Thi Hong Minh, and KiHwan Bae: *Biol. Pharm. Bull.* **31**(9), 1809-1812 (2008)

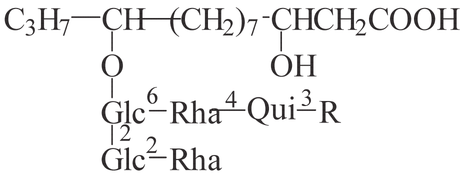


1: ampelopsine B　　　**2**: ε–viniferin

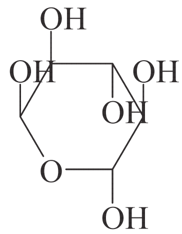
Fig. 1. Chemical Structures of Isolated Compounds **1** and **2**

076-1. 牽牛子 Pharbitidis Semen

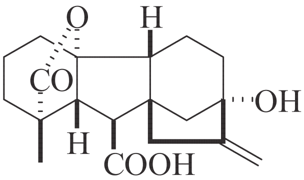
* *Pharbitis nil* Choisy [Convolvulaceae]



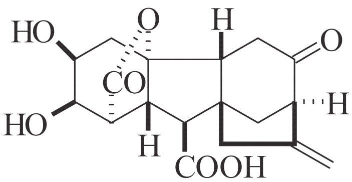
pharbitic acid C : R=H
pharbitic acid D : R=Rha



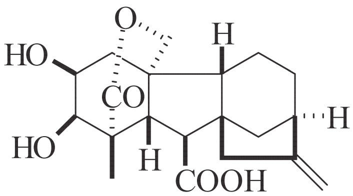
Qui—quinovose



gibberellia A_{20}



gibberellia A_{26}

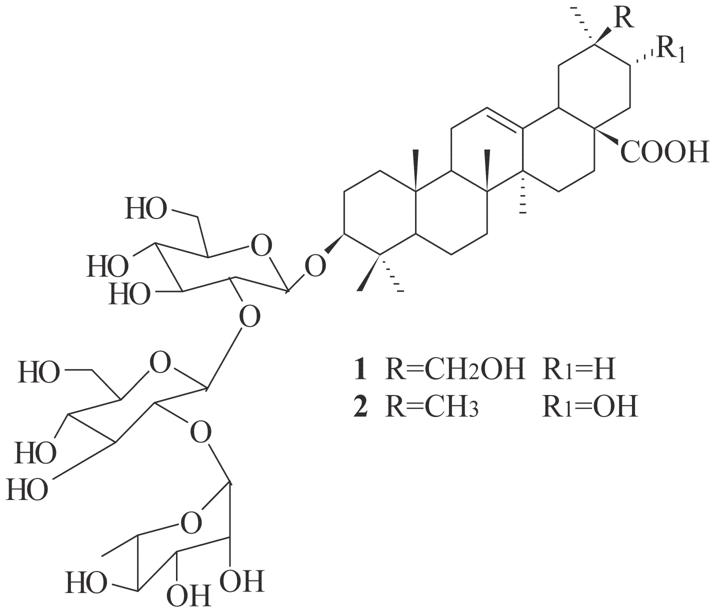


gibberellia A_{27}

Fig. 1. Chemical structures of compounds

076-2. 牽牛子 Triterpenoid Saponins from the Seeds of *Pharbitis nil*

* Da Yung, Hyekyung Ha, Ho Young Lee, Chungsook Kim, Je-Hyun Lee,
KiHwarn Bae, Ju Sun Kim, and Sam Sik Kang:
Chem. Pharm. Bull. **52**(2), 203-206 (2008)



1 R=CH_2OH R_1=H
2 R=CH_3 R_1=OH

* (**1**). phrbitoside A: [=queretaroic acid 3-***O***-α–L-rhamnopyranosyl-(1-2)-***O***-β–D-glucopyranosyl-(1-2)-β–D-glucopyranoside]
(**2**). pharbitoside B: [21α–hydroxyoleanolic acid 3-***O***-α–L-rhamnopyranosyl-(1-2)-***O***-β–D-glucopyranosyl-(1-2)-β–D-glucopyranoside].

Fig. 1. Structures of compounds (**1**) and (**2**)

076-3. 牽牛子 Pharbitidis Semen

* Two New Phenolic Amides from the Seeds of *Pharbitis nil* Choisy

** Ki Hyun Kim, Sang Un Choi, Mi Won Son, and Kang Ro Lee:
Chem. Pharm. Bull. **58**(11) 1532-1535 (2010)

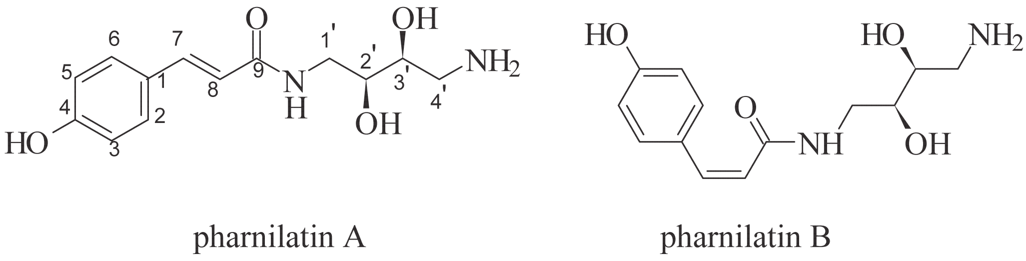


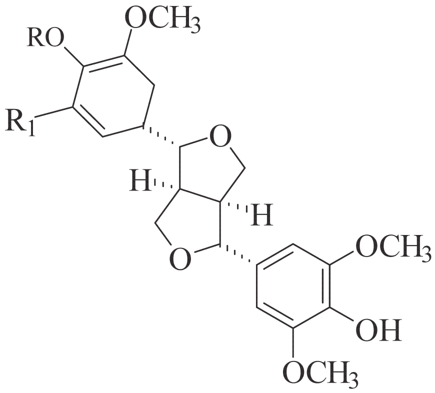
Fig. 1. Chemical structures of pharnilatin A and B

* **pharnilatin A**: 9-[(2'*S*,3'*S*)-1'.4'-diamino-2',3'-butanediol]-(*E*)-*p*-coumarate,
pharnilatin B: 9-[(2'*S*,3'*S*)-1',4'-diamino-2',3'-butanediol]-(*Z*)-*p*-coumarate.

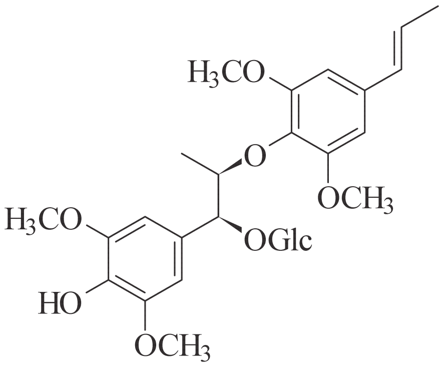
076-4-1. 牽牛子 Phrbitidis Semen

* Bioactive Phenolic Constituents from the Seeds of *Pharbitis nil* [Convolvulaceae]

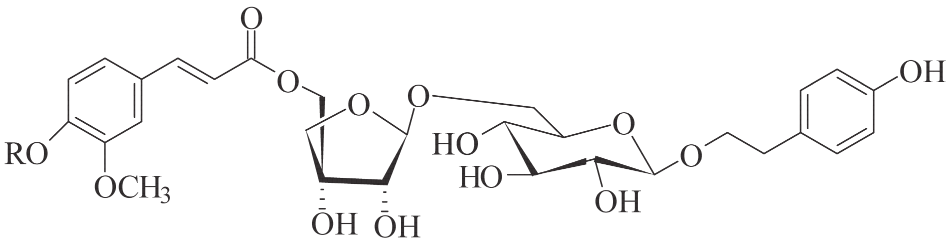
** Ki Hyun, Sang Keun Ha, Sang Un Choi, Sun Yeou Kim, and Kang Ro Lee:
Chem. Pharm. Bull. **59**(11) 1425-1429 (2011)



(**1**): pharsyringaresinol: R=6-O-acetyl-Glc



(2): pharbilignoside



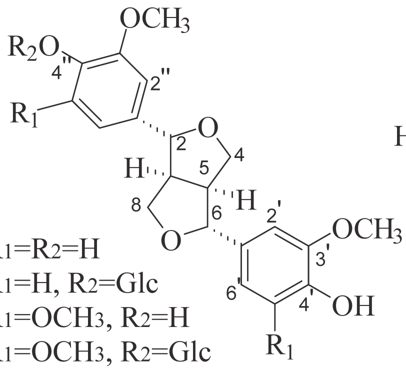
(3): pharbiniloside: R=Glc

Fig. 1-1. The Chemical Structures of Compoumds **1**--**3** from *Pharbitilis nil*

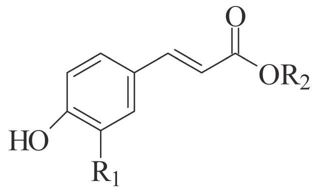
076-4-2. 牽牛子 Pharbitidis Semen

* Bioactive Phenolic Constituents from the Seeds of *Pharbitis nil* Choisy [Convolvulaceae]

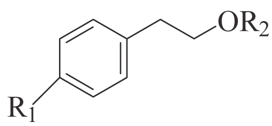
* Ki Hyun Kim, Sang Keun Ha, Sang Un Choi, Sun Yeou Kim, and Kang Ro Lee: *Chem. Pharm. Bull.* **59**(11) 1425-1429 (2011)



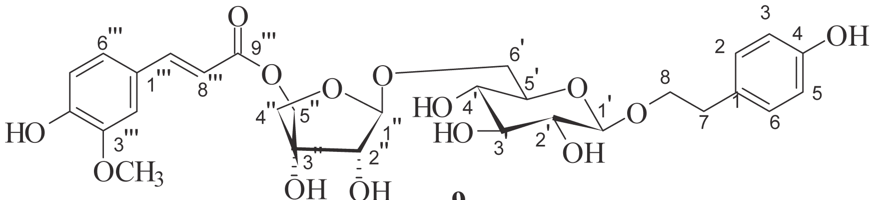
4 R1=R2=H
5 R1=H, R2=Glc
6 R1=OCH3, R2=H
7 R1=OCH3, R2=Glc



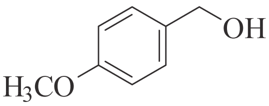
11 R1=OH, R2=ethyl
12 R1=H, R2=ethyl
13 R1=OCH3, R2=H
14 R1=H, R2=H
15 R1=OH, R2=H



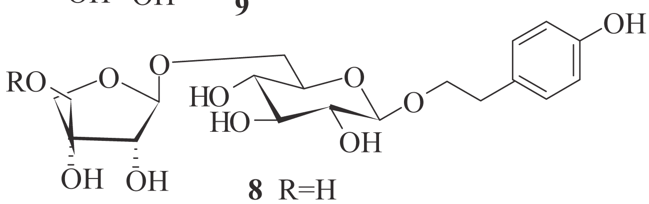
16 R1=OH, R2=H
21 R1=OH, R2=Glc
22 R1=H, R2=Glc



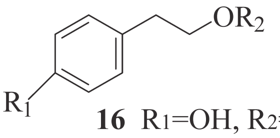
9



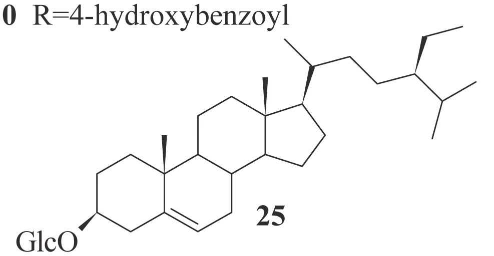
17



8 R=H
10 R=4-hydroxybenzoyl



16 R1=OH, R2=H
21 R1=OH, R2=Glc
22 R1=H, R2=Glc



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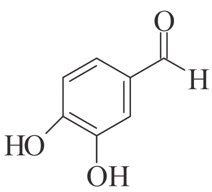

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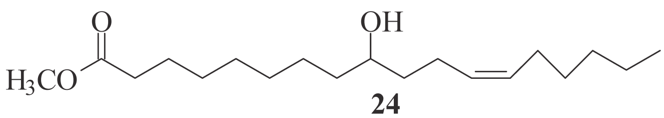

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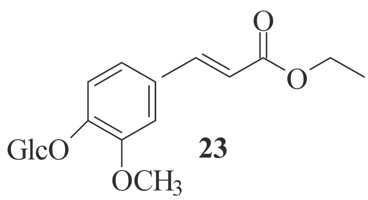

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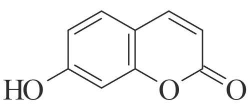
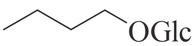


19



20

Fig. 1-2. The Chemical Structures of Compounds **4--25**

076-4-3. 牽牛子 Pharbitidis Semen

* Bioactive Phenolic Constituents from the Seeds of *Pharbitidis nil* Choisy [Convolvulaceae]

* Ki Hyun Kim, Sang Keum Ha, Sang Un Choi, Sun Yeou Kim, and Kang Ro Lee:
Chem. Pharm. Bull. **59**(11) 1425-1429 (2011)

* Two new lignans, termed **pharsyringaresinol** (**1**) and **pharbilignoside** (**2**), a new phenylethanoid glycoside , termed **pharbiniloside** (**3**), and 22 known compounds, were isolated from the EtOH of the seeds of *Pharbibitis nil*

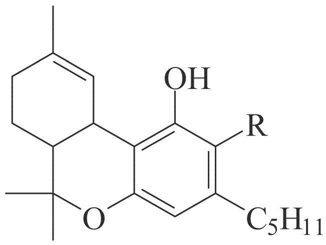
* The known compounds were identified as: (-)-pinoresinol(**4**), (-)-pinoresinol 4-*O*-β–D-glucopyranoside (**5**), (-)-syringaresinol (**6**), (-)-syringaresinol 4-*O*-β–D-glucopyranoside (**7**), osmantuside H (**8**), osmanthuside J (**9**), 2-(4-hydoxyphenyl)ethyl-1-*O*-β–D-[5-*O*-(4-hydroxybenzoyl)]-apiofuranosyl-1-6)- β–D-glucopyranoside (**10**), (*E*)-ethyl caffeate (**11**), (*E*)-ethyl coumarate (**12**), (*E*)-ferulic acid (**13**), (*E*)-*p*-coumaric acid (**14**), (*E*)-caffeic acid (**15**), 2-(*p*-hydroxyphenyl)-ethanol (**16**), *p*-methoxybenzyl-alcohol (**17**), 3,4-dihydroxybenzaldehyde (**18**), umbelliferone (**19**), *n*-butyl β–D-glucopyranoside (**20**), 2-(*p*-hydroxyphenyl)-ethanol 1-*O*-β–D-glucopyranoside (**21**), 2-phenyl-ethyl β–D-glucopyranoside (**22**), (*E*)-ethyl ferulate 4-*O*-β–D-glucopyranoside (**23**),

isoricinolei acid methyl ester (**24**), and sitosteryl β– D-glucoside (**25**).

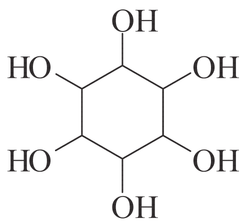
* A group of Lignans (**1,2, 4--7),** including 2 new ones, was isolated for first time from *P. nil* and compounds **8-12**, **16, 17** and **20--24** were isolated from this plant for the first time.

077. 麻子仁 Cannabidis Semen

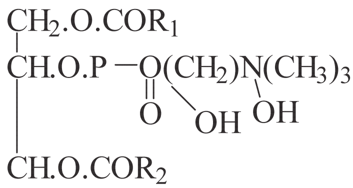
* *Cannabis sativa* L. [Moraceae]



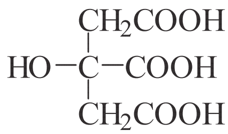
THCA R=COOH
THC R=H
[Cannabis Herba]



inositol



β–lecithin



citric acid

oleic acid $CH_3(CH_2)_7CH{=}CH(CH_2)_7COOH$

linoleic acid $CH_3(CH_2)_4CH{=}CHCH_2CH{=}CH(CH_2)_7COOH$

linolenic acid $CH_3CH_2CH{=}CHCH_2CH{=}CHCH_2CH{=}CH(CH_2)_7COOH$

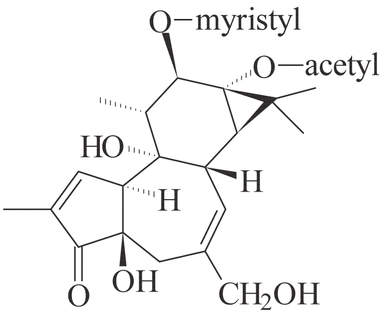
choline $HOCH_2CH_2N(CH_3)_3OH$

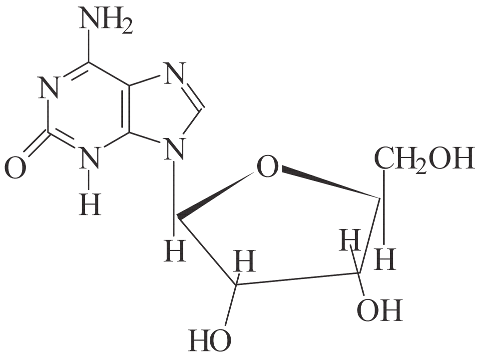
protease $R\text{-}NH\text{-}CO\text{-}R_1 + H\text{-}OH \rightleftharpoons R\text{-}NH_2 + R_1\text{-}COOH$

Fig. 1. Chemical structures of compounds

078. 巴豆 Crotonis Semen

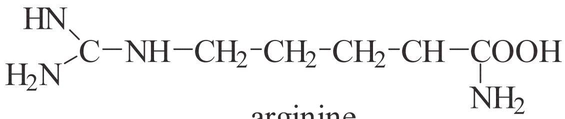
* *Croton tiglium* L. [Euphorbiaceae]





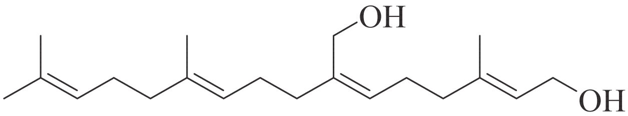
crotonoside

12-***O***-tetradecanoylphorbol-13-acetate
(phorbol ester A1: TPA)



arginine

* *Croton stellatopilosus* Ohba [Euphorbiaceae]
** Juraithip Wugsintasweekul et al : *Biol. Phram. Bull.* **31(5), 852-856 (2008)**



plaunotol

079. 蓖麻子 Ricini Semen

* *Ricinus communis* L. [Euphorbiaceae]

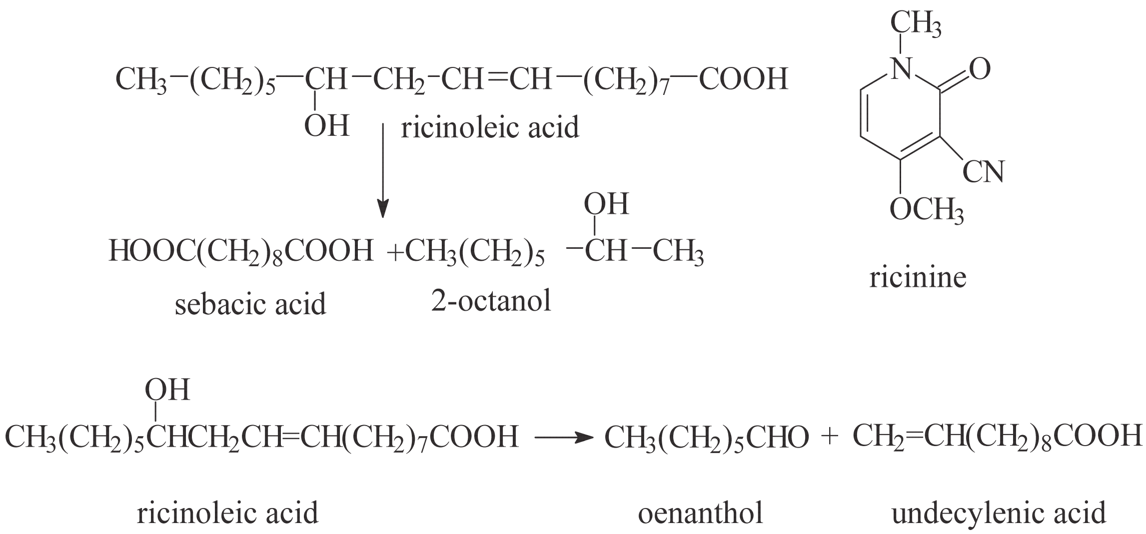
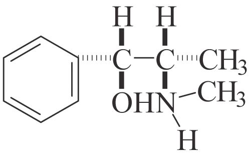


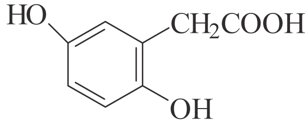
Fig. 1. Chemical structures of compounds

080. 半夏 Pinelliae Tuber

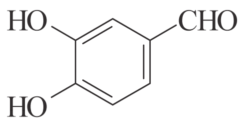
* *Pinellia ternata* Breitenbach [Araceae]



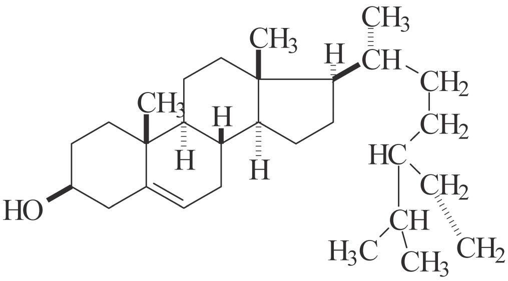
(-)-ephedrine

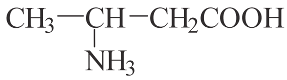


homogentisic acid

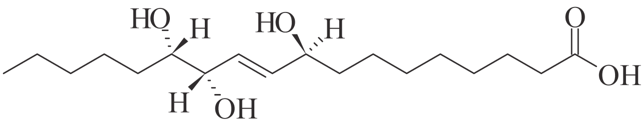


3, 4-dihydroxy-benzaldehyde





β—aminobutyric acid

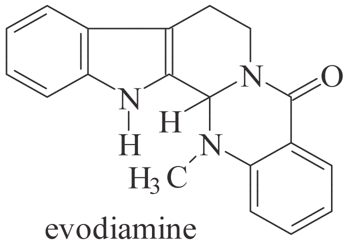


9,12,13-Trihydroxy-10*E*-octadecenoic acid
(pinellic acid)

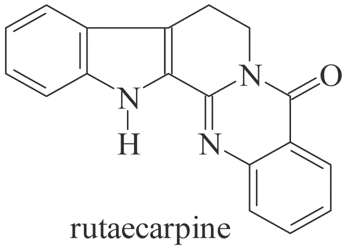
Fig. 1. Chemical structures of compounds

081. 呉茱萸 Evodiae Fructus

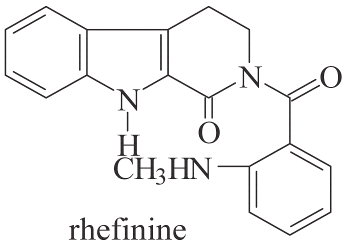
* *Evodia rutaecarpa* Bentham. [Rutaceae]



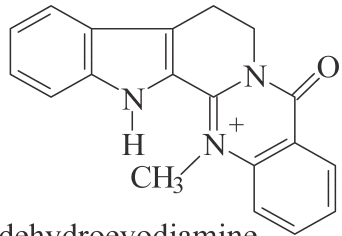
evodiamine



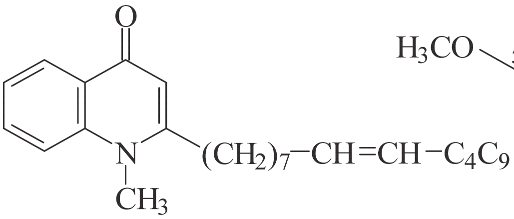
rutaecarpine



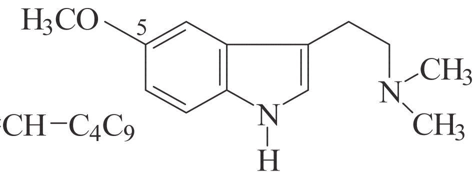
rhefinine



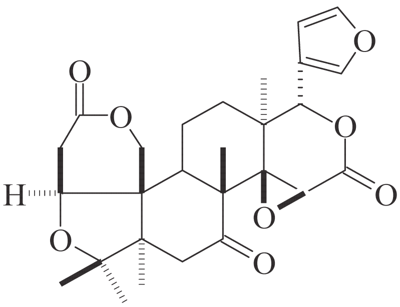
dehydroevodiamine



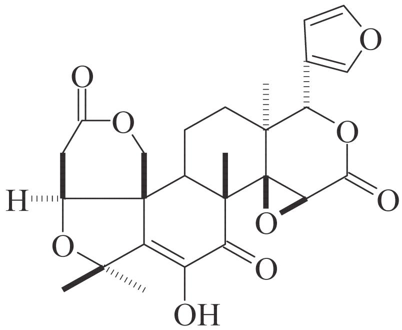
evocarpine



5-methoxy-N-dimethyl-tryptamine



limonin



evodol

$CH_3(CH_2)_4CH\overset{cis}{=}CH\text{-}CH_2\text{-}CH\overset{cis}{=}CH(CH_2)_7\text{-}COOH$

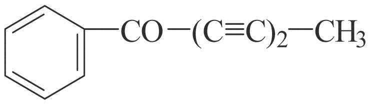
goshuyunic acid

*[Nishikawa et al: *Yakugaku Zasshi,* **93,** 691 (1976)]

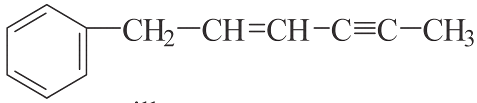
Fig. 1. Chemical structures of compounds

082. 茵陳蒿 Artemisiae Capillaris Herba

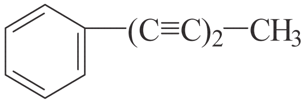
* *Artemisia capillaris* Thunberg [Compositae]



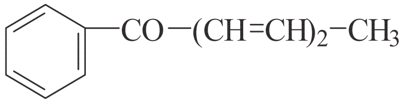
capillin



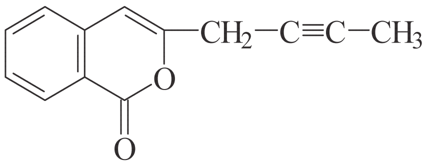
capillene



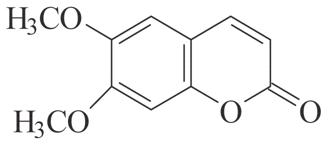
norcapillene



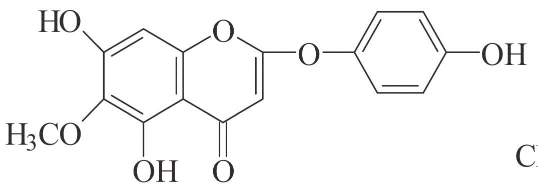
capillone



capillarin



scoparone
(=esculetin 6,7-dimethylether)



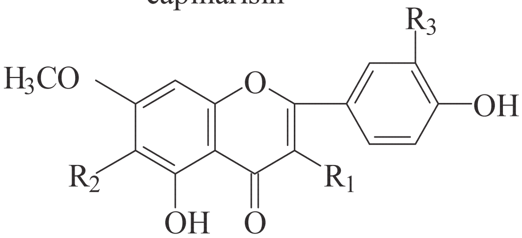
capillarisin

$CH_3.(CH_2)_{26}.COOH$

montanic acid

$CH_3.(CH_2)_4CH{=}CHCH_2CH{=}CH(CH_2)_7COOH$

linoleic acid

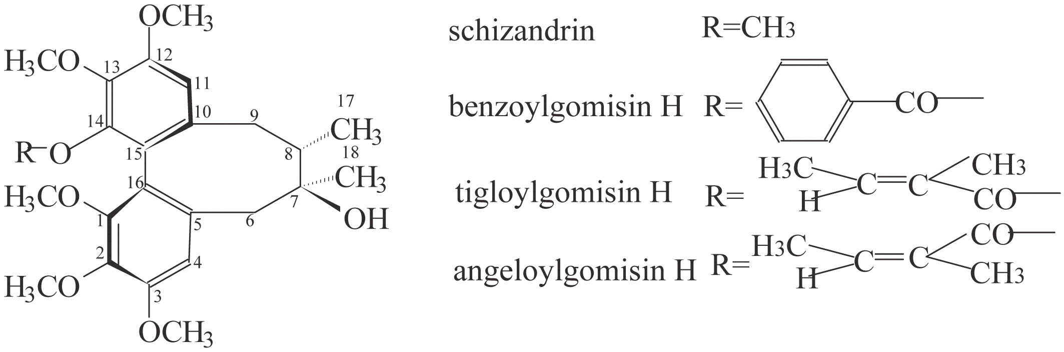


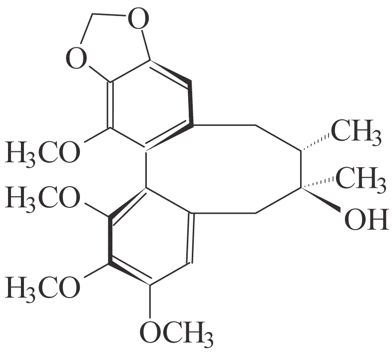
	R_1	R_2	R_3
cirsitineol	H	H	OCH_3
cirsimaritin	H	OCH_3	H
genkwanin	H	H	H
rhamnocitrin	OCH_3	H	H

Fig. 1. Chemical structures of compounds

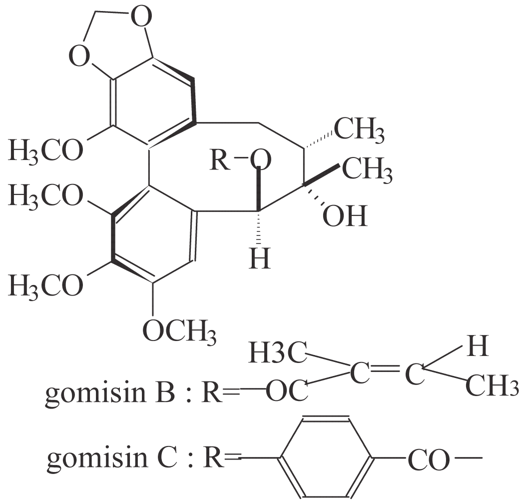
083-1-1. 五味子 Schisandrae Fructus

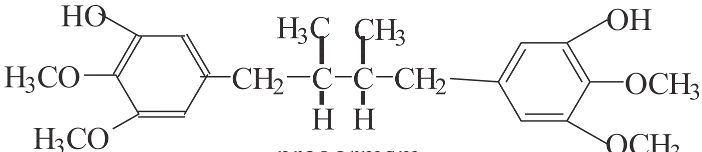
* *Schisandra chinensis* Baillon [Schisandraceae]



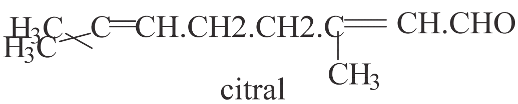


gomisin A

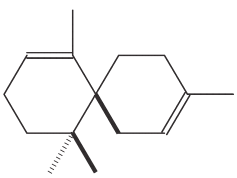




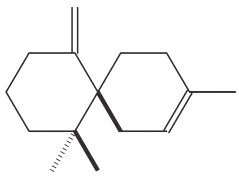
pregormsm



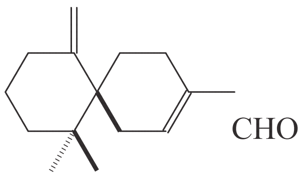
citral



α-chamigrene



β-ehamigrene

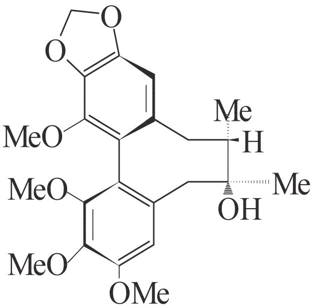


β-ehamigrenal

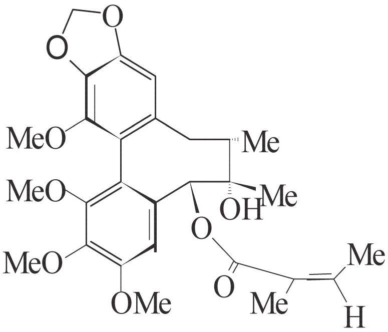
Fig. 1. Chemical structures of compounds

083-1-2. 五味子 Schisandrae Fructus

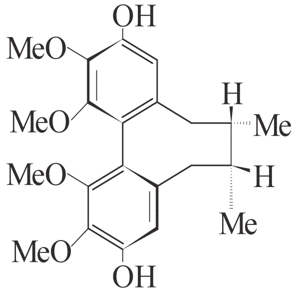
* *Schisandra chinensis* Baillon [Schisandraceae]



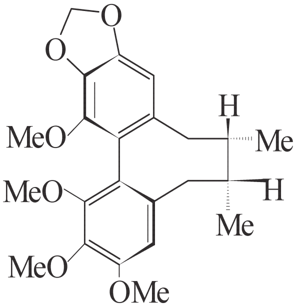
gomisin A (TJN-101))



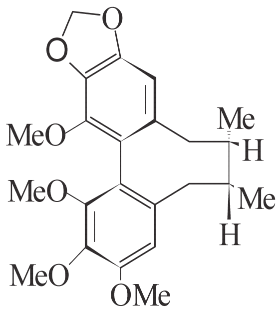
gomisin B



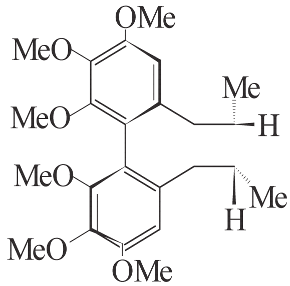
gomisin J



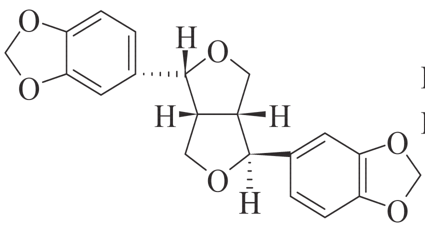
gomisin N



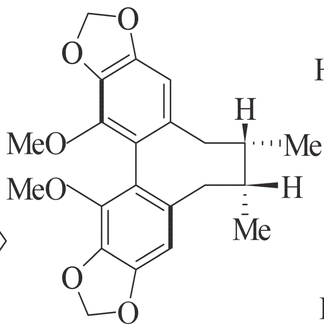
(*dl*)-*γ*–schizandrin



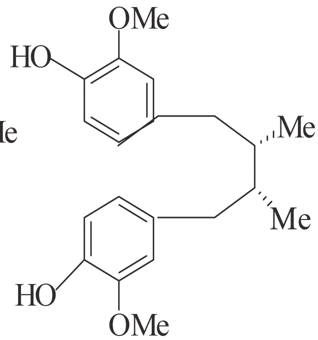
(+)-deoxyshizandrin



(-)-asarinin (AS-6)



wuweizisu C(Sch-1)



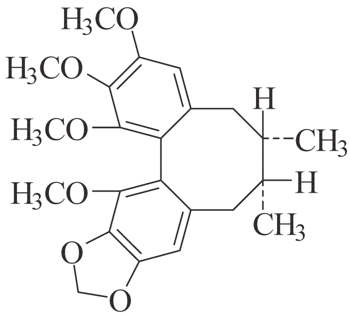
meso-dihydroguairetic acid (GR-10)

Fig. 1. Chemical structures of compounds

083-1-3. 五味子 Schisandrae Fructus

* *Schisandra chinensis* Baillon [Schisandraceae]

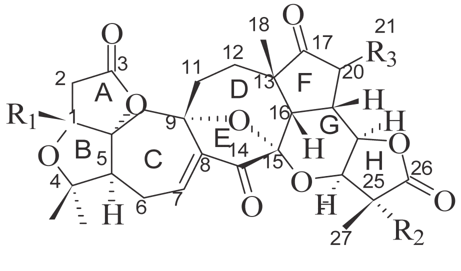
** Po Yee Chiu, Hoi Yan Leung, Ada Hoi Ling Siu, Michel Kong Tat Poon, and Kam Ming Ko: *Biol. Pharm. Bull.* **30**(6), 1108-1112 (2007)



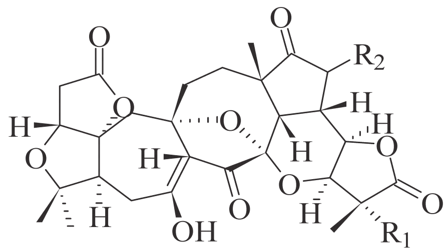
Schisandrin B (Sch B)

083-1-4-1. 五味子 Nortriterpenoids and Lignans from the Fruit of *Schisandra chinensis* Baillon [Schisandraceae]

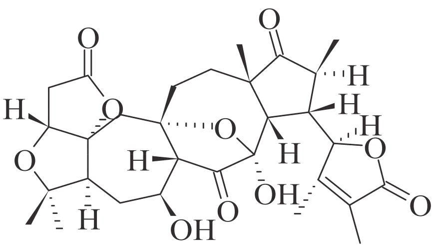
* Yong-Bo Xue, Yan-Long Zhang, Jian-Hong Yang, Xue Du, Jian-Xin Pu, Wei Zhao, Xiao-Nian Li, Wei-Lie Xiao, and Han-Dong Sun:
Chem. Pharm. Bull. **58**(12) 1606-1611 (2010)



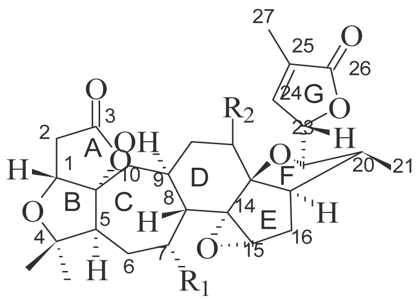
	R_1	R_2	R_3
1	OH	OH	βMe
3	H	OH	βMe
4	OH	H	αMe
17	OH	H	βMe



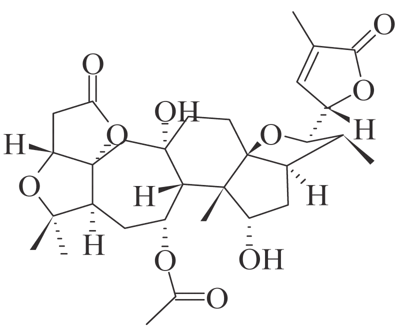
	R_1	R_2
5	H	βMe
6	OH	βMe
7	H	αMe



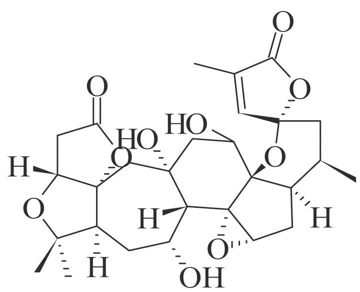
8



	R_1	R_2
2	OAng	αOH
9	OAng	=O
10	OAng	αOAc



11

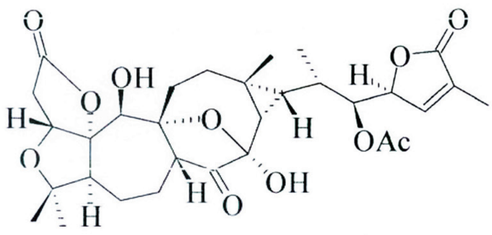


12

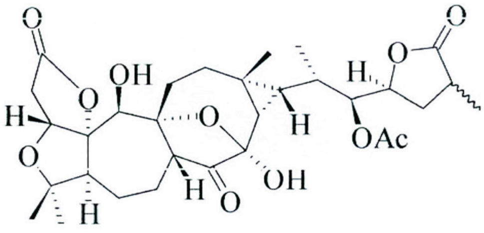
Chart I-1 Chemical Structure (**1**-**12**) from the Fruit of *Schisandra chinensis*

083-1-4-2. 五味子 Nortriterpenoids and Lignans from the Fruit of *Schisandra chinensis* Baillon [Schisandraceae]

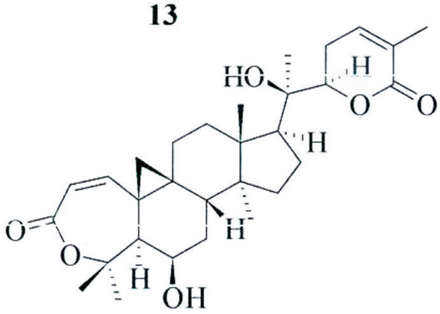
* Yong-Bo Xue, Yan-Long Zhang, Jian-Hong Yang, Xue Du, Jian-Xin Pu, Wei Zhao, Xiao-Nian Li, Wei-Lie Xiao, and Han-Dong Sun:
Chem. Pharm. Bull. **58**(12) 1606-1611 (2010)



13



14



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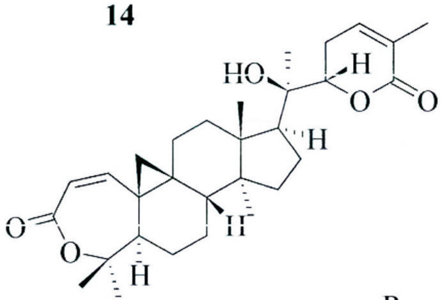
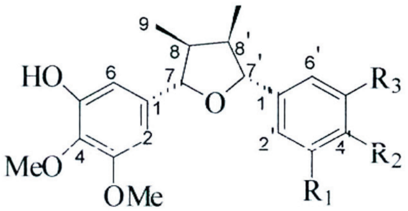
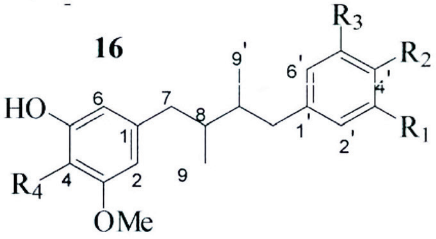


16



	R_1	R_2	R_3
18	OMe	OMe	OMe
19	OMe	OH	H



	R_1	R_2	R_3	R_4
20	H	OH	H	OMe
21	H	OMe	OMe	OMe
22	H	OH	OMe	OMe
23	OH	OMe	OMe	OMe
24	OH	OH	OMe	OH

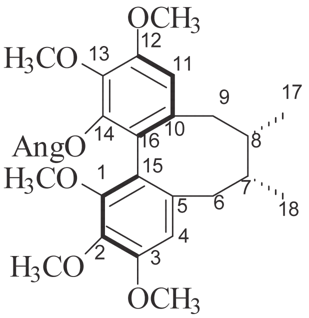
Chart I-2 Chemical Structure (**13--24**) from the Fruit of *Schisandra chinensis*

* Schisanartane nor triterpenoid, **schindilactone H** (**1**); an 18-norschiartane bisnortriterpenoid, **wuweizidilactone I** (**2**); two tetrahydrofuran-type lignans, **schinlignins A and B** (**18** and **19**); and three dibenzyl butane-type lignans, **schineolignins A--C** (**20--22**),

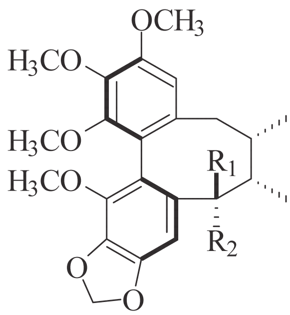
**Togetner witn 16 known compounds isolated:
lancifodilactone N (3), schindilactone B (4), lancifodilactone C (5), lancifodilactone L (6), henridilactone D (7), lancifodilactone I (8), wuweizidilactone A (9), wuweizidilactone B (10), wuweizidilactone C (11), wuweizidilactone H (12), pre-schisanartanin A (13), pre-schisanartanin B (14), kadcoccilactone Q (15), kadsuphilactone B (16), pre-gomisin (23) and *meso*-dihydroguaiaretic acid (24).**

083-2. 五味子 Lignans from *Schisandra propinqua* var. *propinqua* [Schsandraceae]

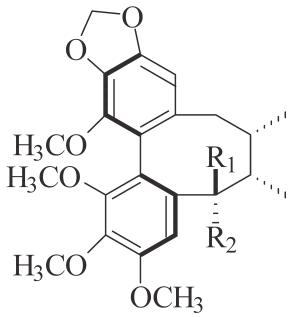
* Chun Lei, Sheng-Xiong Huang, Ji-Jun Chen, Jian-Xin Pu, Li-Bin Yang, Yong Zhao, Jin-Ping Liu, Xie-Mei Gao, Wei-Lie Xiao, and Han -Dong Sun:
Chem. Pharm. Bull. **55**(8), 1281-1283 (2007)



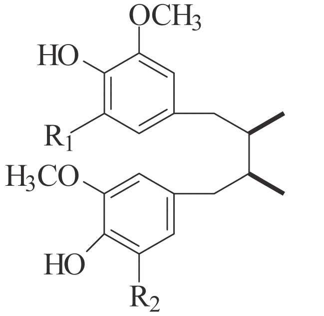
1



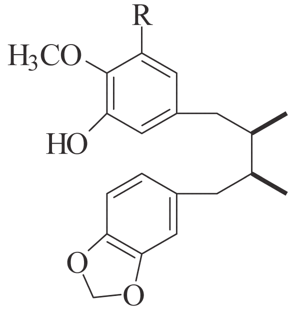
2 R_1=OCH_3, R_2=H
3 R_1=OH, R_2=H
4 R_1=OAng, R_2=H



5 R_1=OH, R_2=H
6 R_1=OAng, R_2=H
7 R_1=OBz, R_2=H
8 R_1=H, R_2=OH



9 R_1=OCH_3, R_2=OCH_3
10 R_1=H, R_2=H



11 R=H
12 R=OCH_3

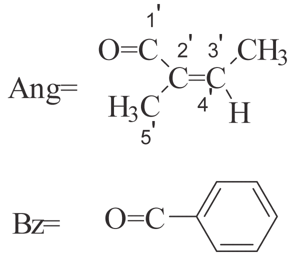
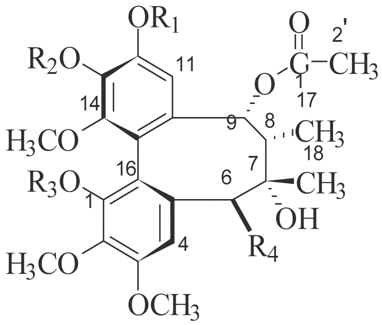


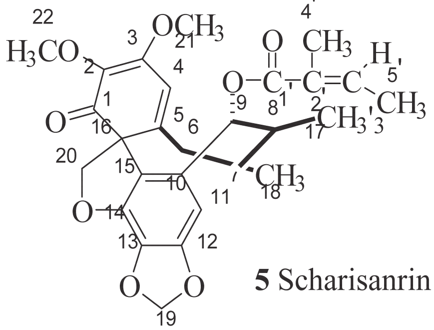
Fig. 1. Chemical structures of compound **1--12**

* *Dibenzocyclooctadiene lignans:*	* *1,4-bis(phenyl)-2,3-dimethylbutane type lignans:*
1. angeloyl-(+)-gomisin K3	**9**. pregomisin
2. methylisogomisin O	**10**. meso-dihydroguaiaretic acid
3. isogomisin O	**11**. isoanwulignan
4. angeloylisogomisin O	**12**. sphenanlignan
5. gomisin O	
6. angeloylgomisin O	
7. benzoylgomisin O	
8. epigomisin O	

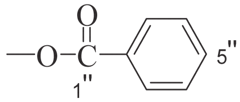
083-3. 五味子 *Schizandra arisanensis* [Schisandraceae](阿里山)

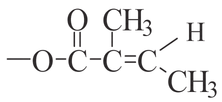
* Wu M-D, Huang R-L, Kuo L-M, Hung C-C, Ong C-W, and Kuo Y-H:
Chem. Pharm. Bull. **51**(11), 1233-1236 (2003)

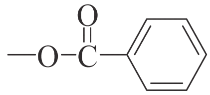


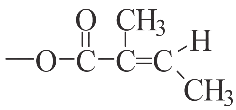


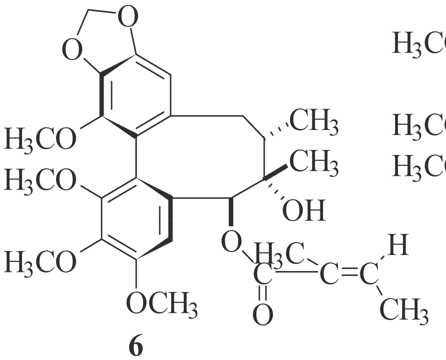
5 Scharisanrin E

1 $R_1+R_2=CH_2$ $R_3=CH_3$ $R_4=$ 

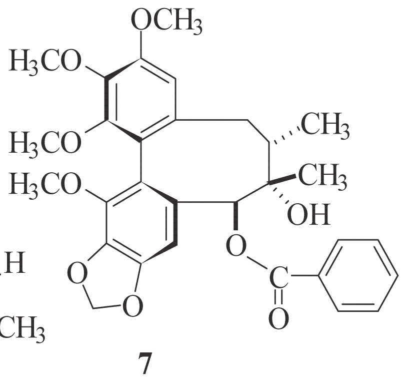
2 $R_1+R_2=CH_2$ $R_3=H$ $R_4=$  (Ang)

3 $R_1=R_2=R_3=CH_3$ $R_4=$ 

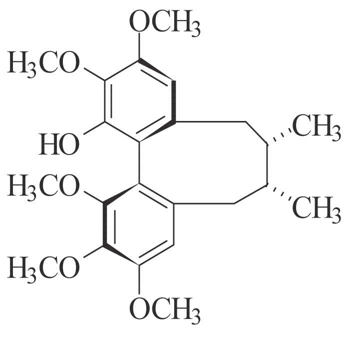
4 $R_1+R_2=CH_2$ $R_3=CH_3$ $R_4=$  (Ang)



6



7



8

Fig. 1. Chemical structures of compounds **1--8**

* Schizandrin F (1), G (2), H (3), Kadsurarin (4), Scharisanrin E (5), Gomisin B (6), G (7), (+)-gomisin K_3

** Kadsurarin from *Kadsura matsudai* in Taiwan

083-4. 五味子 Two New Lignans from *Schisandra henryi* Clarke [Schisandraceae]

* Hai-Tao Liu, Li-Jia Xu, Yong Peng, Xiu-Wei Yang, and Pei-Gen Xiao:
Chem. Pharm. Bull. **57**(4) 405-407 (2009)

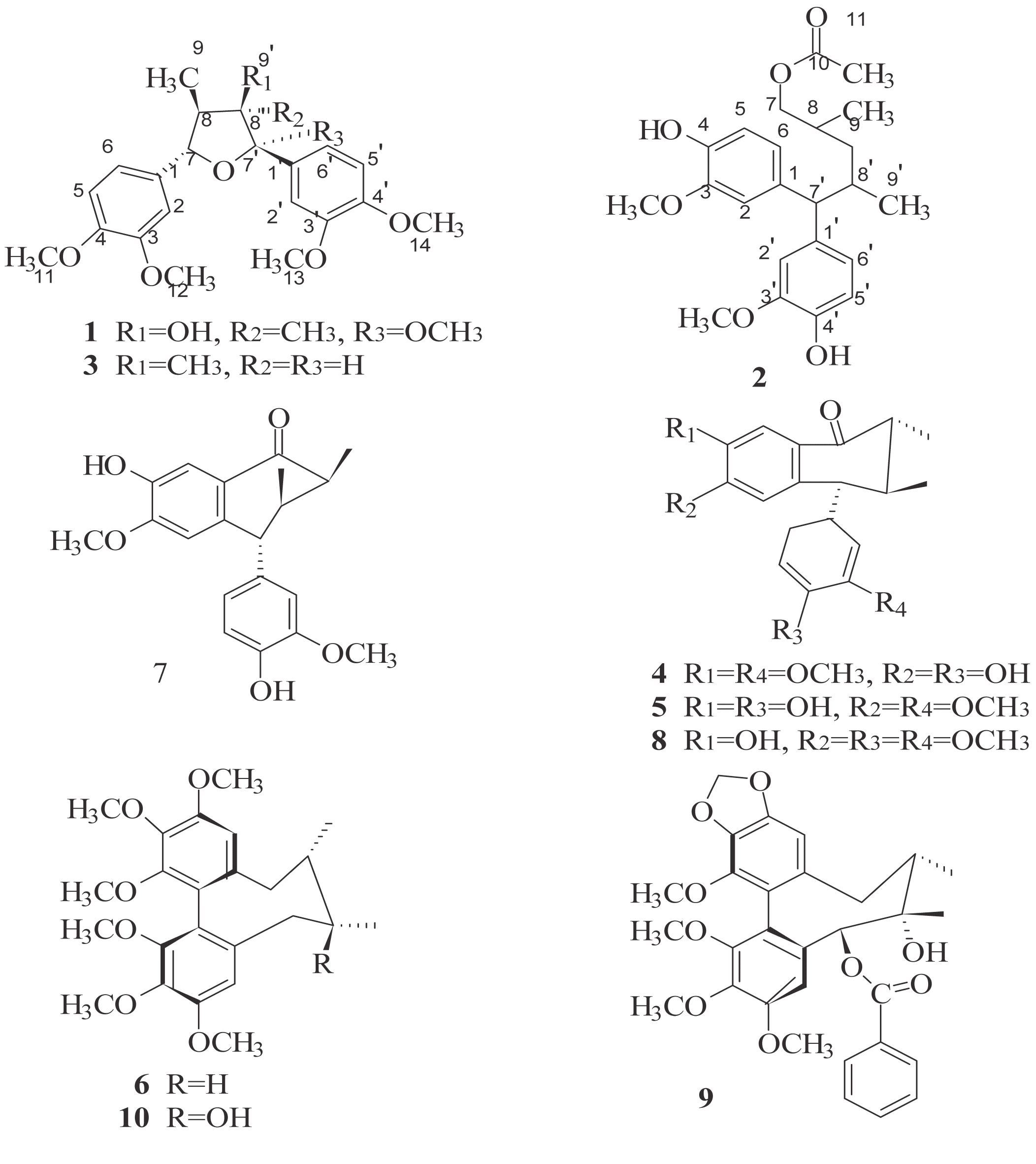


Fig. 1. Structures of Compounds **1--10**

* Two new Lignans:

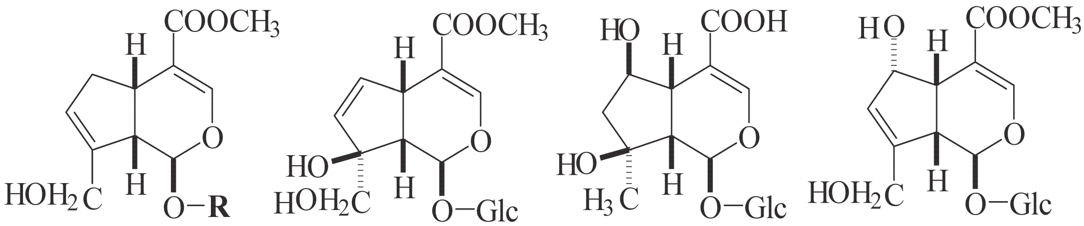
(**1**) **henricine A**, (**2**) **henricine B.**

** Eight known Lignans:

(**3**) ganshisandrine, (**4**) wulignan A_2, (**5**) epiwulignan A_1,
(**6**) deoxyshisandrin, (**7**) wulignan A_1, (**8**) epischisandrone,
(**9**) schisantherin A. and (**10**) schisandrol A from the stem of *Schisandra henryi*.

084-1. 山梔子 Gardeniae Fructus

* *Gardenia jasminoides* Ellis [Rubiaceae]

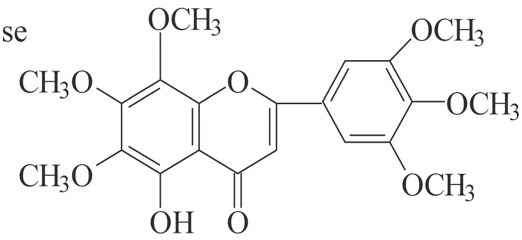


genipin R=H
geniposide R=Glc
genipin gentiobioside R=gentiobiose

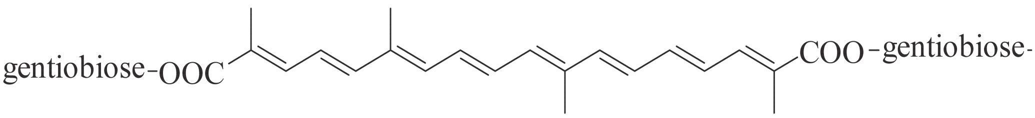
gardenoside

shanzhiside

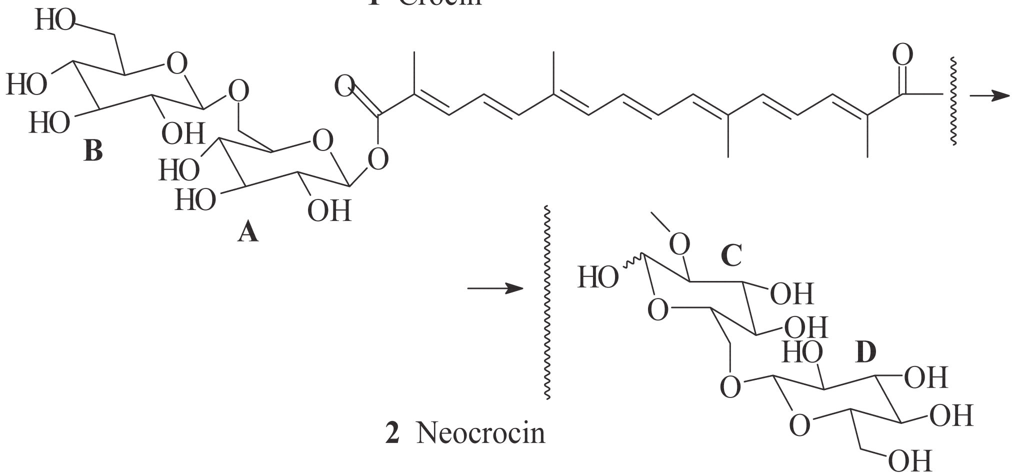
methyl-deacetyl-asperuloside



gardenin



1 Crocin



2 Neocrocin

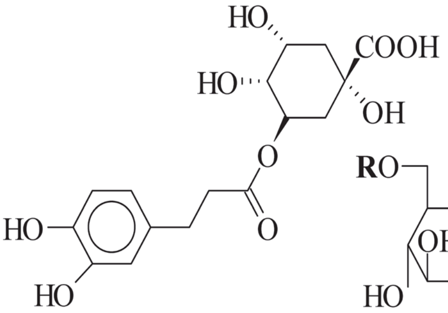
Fig. 1. Chemical structures of compounds

084-2. 山梔子 Gardeniae Fructus

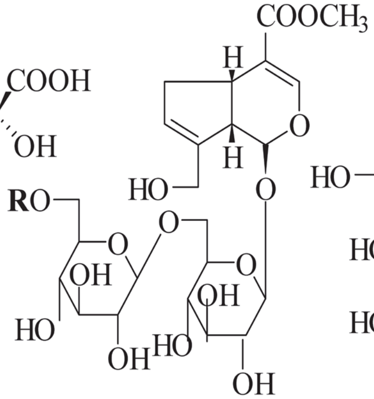
* *Gardenia jasminoides* Ellis **[Rubiaceae]**

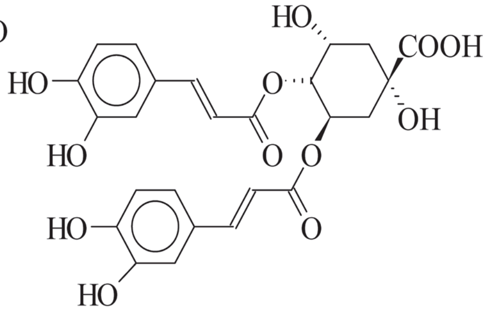
** Nishizawa M, Izuhara R, Kaneko K, Koshihara Y, and Fujumoto Y: *Chem Pharm Bull,* **36**(1), 87-95 (1988)

*** Lipoxygenase inhibitor

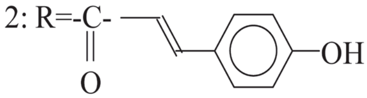


(1): chlorogenic acid

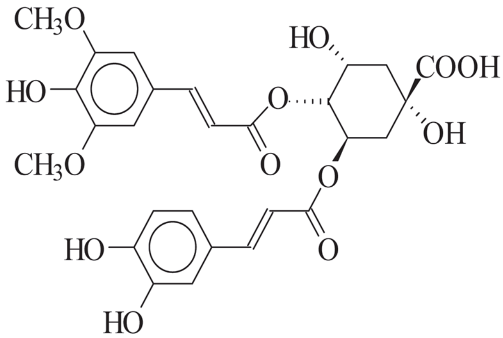




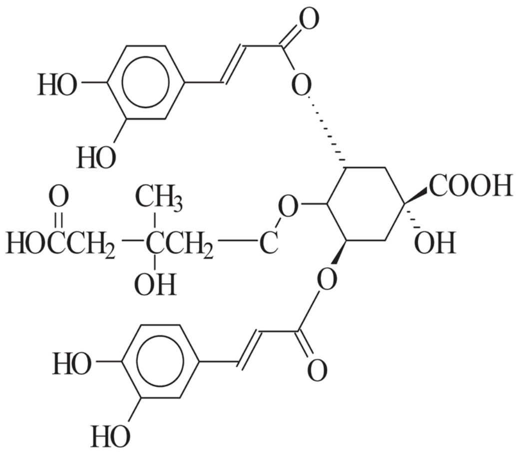
(3:) 3,4-di-***O***-caffeoylquinic acid



* (2): 6''-*p*-coumaroyl genipin gentiobioside



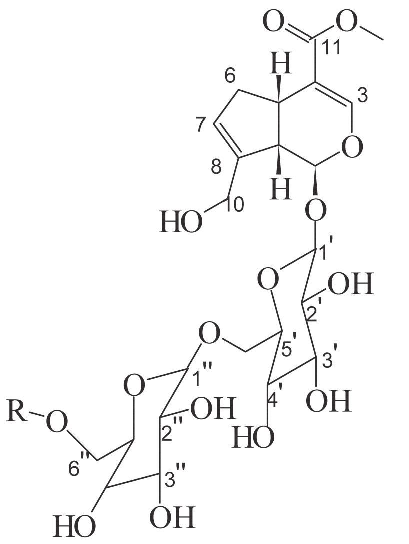
(4): 3-***O***-caffeoyl-4-***O***-sinapoylquinic acid



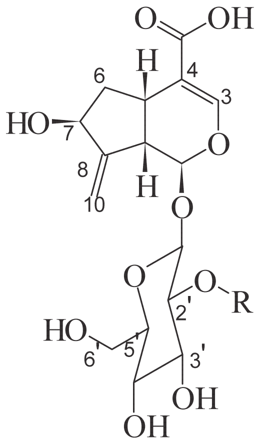
(5): 3,4-di-***O***-caffeoyl-***O***-(3-hydroxy-3-methyl)-glutaroylquinic acid

084-3. 山栀子 Three New Iridoid Glycosides from the Fruit of *Gardenia jasminoides* var. *radicans* Makino

* Fang-min Qin, Ling-jie Meng, Hui-liang Zou, and Guang-xiong Zhou: *Chem. Pharm. Bull.* **61**(10) 1071-1074 (2013)

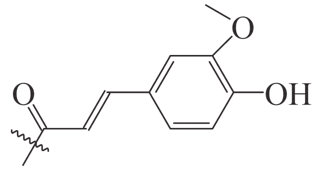


1 R=*trans*-feruloyl



2 R=*trans*-*p*-coumaroyl
3 R=*trans*-feruloyl

trans-feruloyl



trans-*p*-coumaroyl

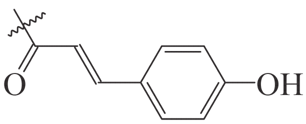
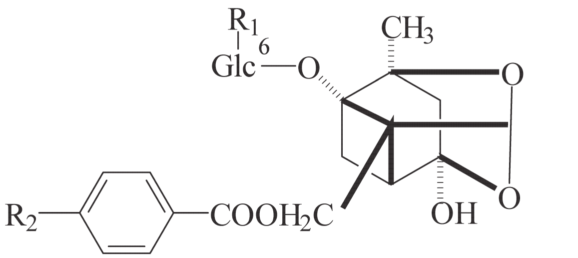


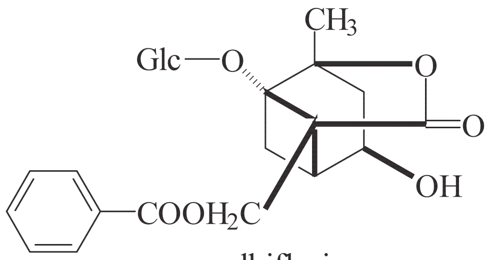
Fig.1. The structures of Compounds **1-3**

* Three new iridoid glycosides, 6''-*O*-*trans*-feruloylgenipin gentiobioside (**1**), 2'-*O*-*trans*-*p*-coumaroylgardenoside (**2**), 2'-*O*-*trans*-feruloylgardenoside (**3**), were isolated from the fruit of *Gardenia jasminoside* var. *radicans* Makino (Rubiaceae).

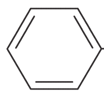
086–1. 芍藥 Paeoniae Radix

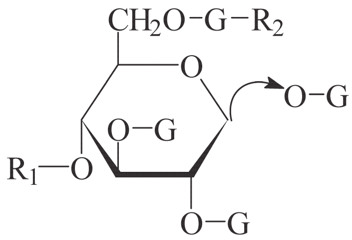
* *Paeonia lactiflora* Pallas [Paeoniaceae]
(=*P.* *albiflora* Pallas var. *trichocarpa* Bunge)





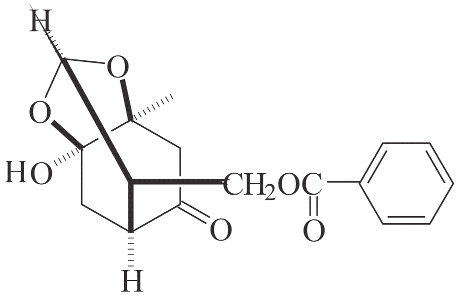
albiflorin

	R_1	R_2
paeoniflorin	H	H
oxypaeoniflorin	H	OH
benzoylpaeoniflorin	 CO	H

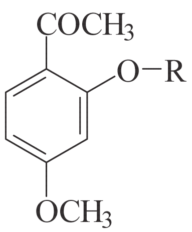


	R_1	R_2
tetragalloylglucose	H	H
pentagalloylglucose	G	H
hexagalloylglucose	G	G

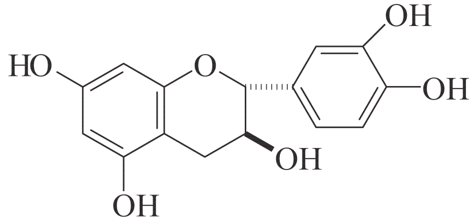
* **G:**: galloyl group



paeoniflorigenone



paeonol R=H
paeonoside R=Glc
paeonolide R=Glc $\overset{4}{—}$Ara



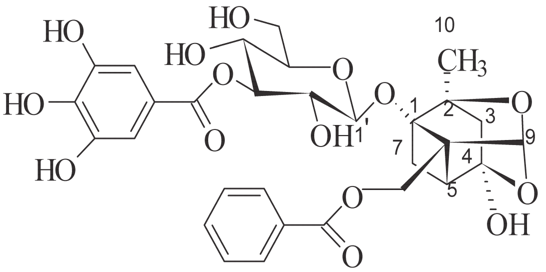
(+)-catechin

Fig. 1. Chemical structures of compounds

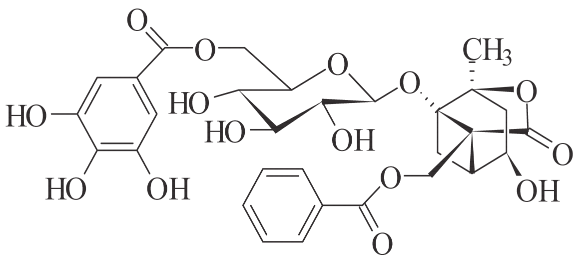
086-2-1. 芍藥 Paeoniae Radix

* *Paeonia lactiflora* Pallas [Paeoniaceae]

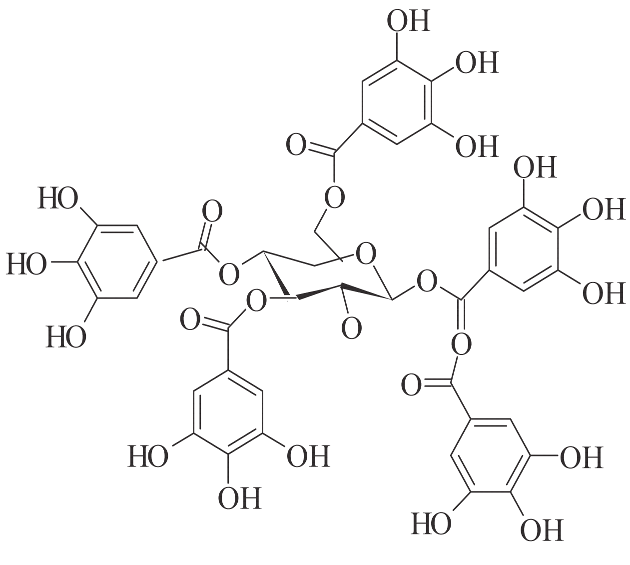
** Kazuo Washida, Yoshiyuki Itoh, Takashi Iwashita, and Kyosuke Nomoto: *Chem. Pharm. Bull.* **57**(9) 971-974 (2009)



3-***O***-Galloylpaeoniflorin (**1**)



6'-***O***-Galloylpaeoniflorin (**2**)



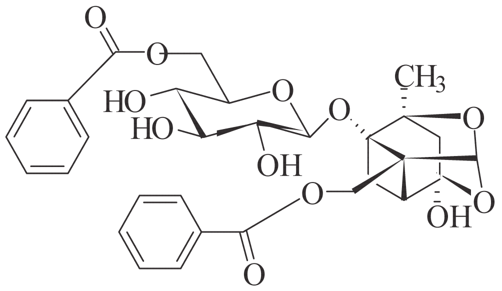
Pentagalloylglucose (**3**)

Fig. 1-1. Structures of Compounds **1--3**

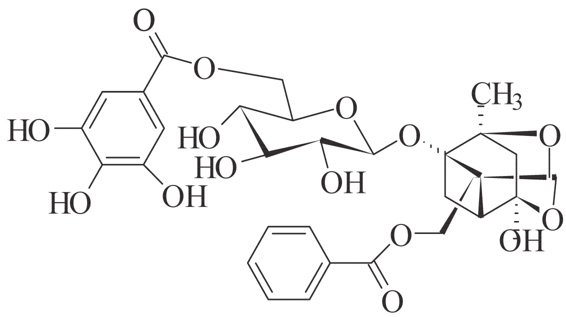
086-2-2. 芍藥 Paeoniae Radix

* *Paeonia lactiflora* Pallas [Paeoniaceae]

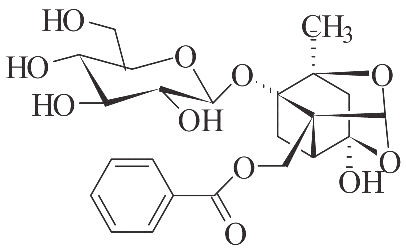
** Kazuto Washida, Yoshiyuki Itoh, Takashi Iwashita, and Kyosuke Nomoto: *Chem. Phaem. Bull.* **57**(9) 971-974 (2009)



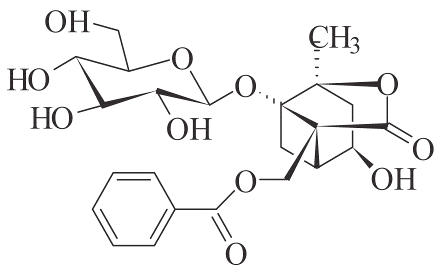
6'-***O***-Benzoylpaeoniflorin (**4**)



6'-***O***-Galloylpaeoniflorin (**5**)



Paeoniflorin (**6**)

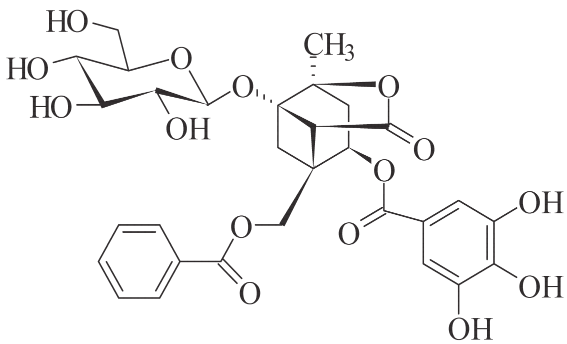


Albiflorin (**7**)

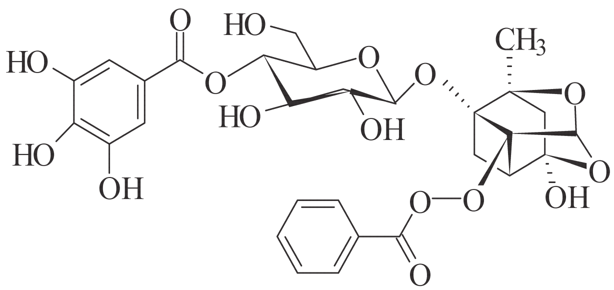
Fig. 1-2. Structures of Compounds **4**--**7**

086-3. 芍藥 Two New Galloylated Monoterpene Glycosides, 4-*O*-Galloylalbiflorin and 4'-*O*-Galloylpaeoniflorin, from the Roots of *Paeonia lactiflora* Pall (Paeoniae Radix) [Paeoniaceae] Grown and Processed in Nara Prefecture, Japan

* Kazuto Washida, Tohru Yamagaki, Takashi Iwashita, and Kyosuke Nomoto:
Chem. Pharm. Bull. **57**(10) 1150-1152 (2009)



4-*O*-Galloylalbiflorin (**1**)

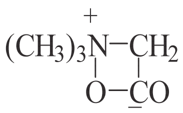


4'-*O*-Galloylpaeoniflorin (**2**)

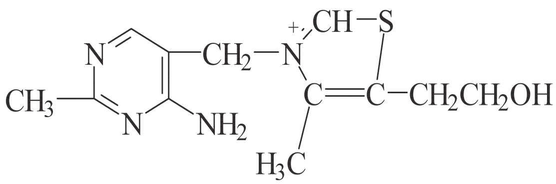
Fig. 1. Structures of Compounds **1** and **2**

087. 枸杞子 Lycii Fructus and Lycii Radicis Cortex

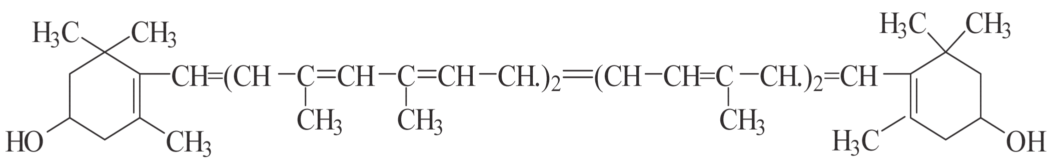
* *Lycium chinense* Mill. [Solanaceae]



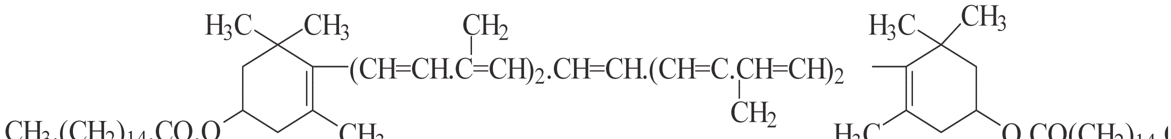
betaine
(glycine trimethylammonium hydroxide anhydride)



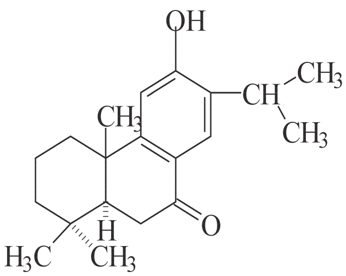
vitamin B1



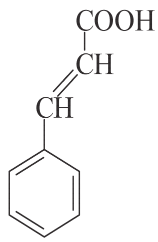
zeaxanthin



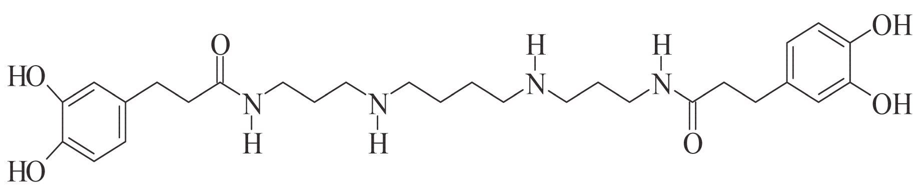
physalien



sugiol



cinnamic acid



kukoamine

Fig. 1. Chemical structures of compounds

088-1. 生薑 Zingiberis Rhizoma, Zingiberis Siccatum Rhizoma

* *Zingiber officinale* Roscoe [Zingiberaceae]

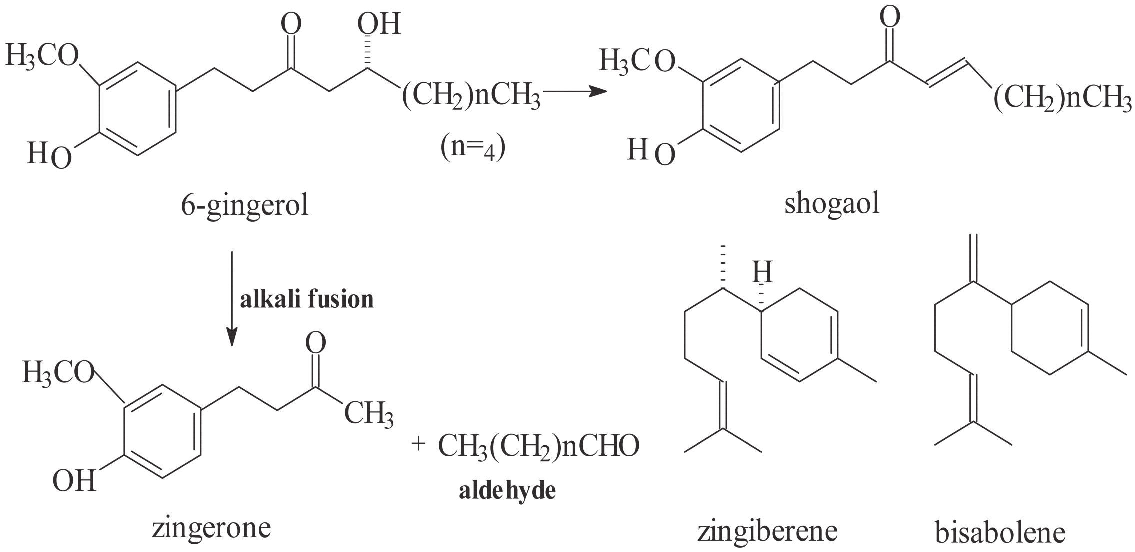


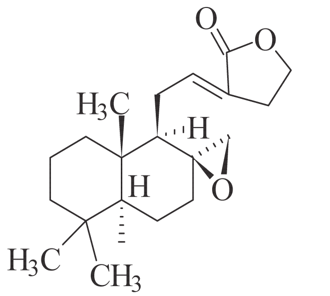
Fig. 1. Chemical structures of compounds

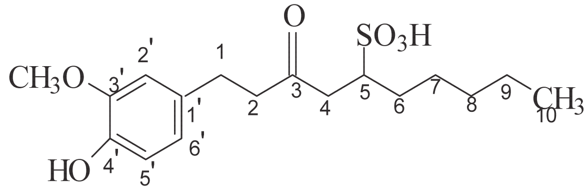
088-2 生薑 Zingiberis Rhizoma

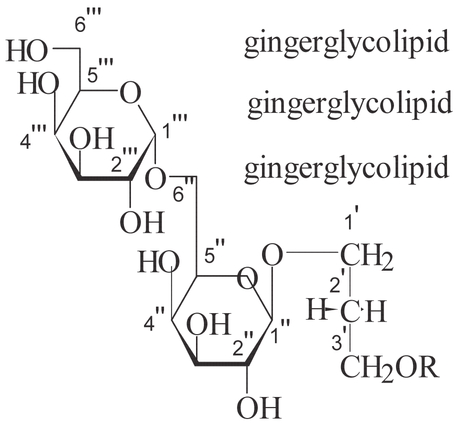
* *Zingiber officinalale* Roscoe [Zingiberaceae]

** Anti-5-hydroxytryptamine -3 Effect of Galanolactone, Diterpenoid Isolated from Ginger:Q. Huang, M. Iwamoto, S. Aoki, N. Tanaka, J, Yamahara, Y. Takaishi , M. Yoshida, T. Tomimatsu and Y. Tamai, *Chem Pharm Bull,* **39**(2), 397-399 (1991)

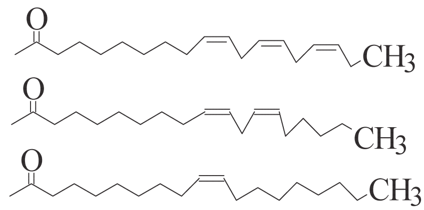
*** An Anti-ulcer Principlie, 6-Gingesulfonic acid, and Three Monoacyldigalactosyl glycerols, gingerglycolipids A, A, and C from Zingiberis Rhizoma Originating in Taiwan , M. Yoshikawa et al : *Chem PharmBull,* **42**(6), 1226-1230 (1994)


galanolactone


6-gingesulfonic acid



gingerglycolipid A(2): R=
gingerglycolipid B(3): R=
gingerglycolipid C(4): R=



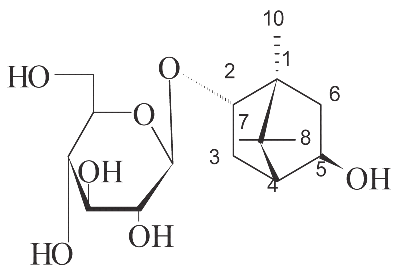
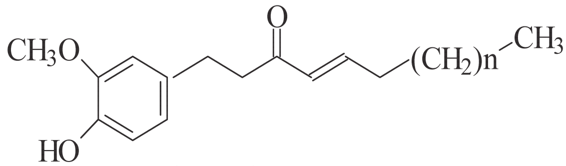

(+)-angelicoidenol-2-***O***-β–D-glucopyranoside

Fig. 1. Chemical structures of compounds

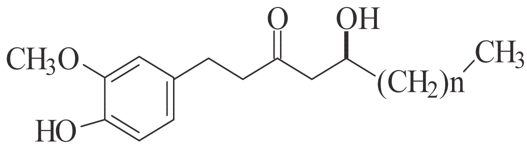
088-3. 生薑 Zingiberis Rhizoma

* *Zingiber officinale* Roscoe [Zingiberaceae]

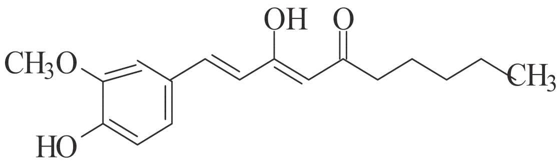
** J. Yamahara, H. Matsuda, S. Yamaguchi, H. Shimomura, N. Murakami, M. Yoshikawa :
Natural Medicines, **49**(1), 76-83 (1995)



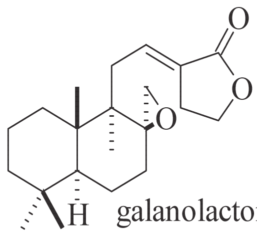
6–shogaol **(1): n=4**
8- shogaol **(2): n=6**



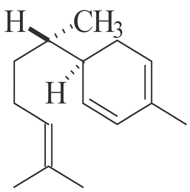
6–gingerol **(3):n=4**
8- gingerol **(4):n=6**
10-gingerol **(6):n=8**



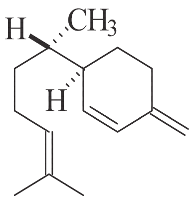
6-dehydrogingerdione **(6)**



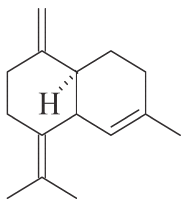
galanolactone **(11)**



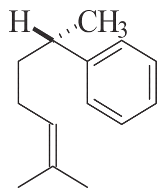
α–gingiberene (**7**)



β–sesquiphellandrene (**8**)



β–bisaborene (**9**)



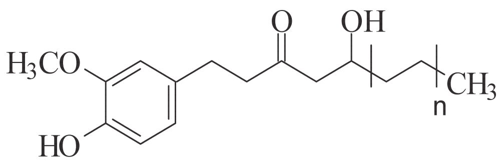
ar-curcumene (**10**)

Fig. 1. Chemical structures of compounds

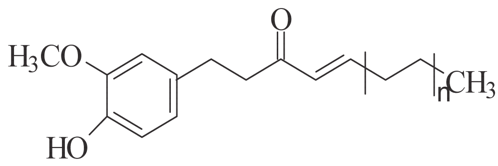
088-4. 生薑 Zingiberis Rhizoma and Z. Siccatum Sulfonater Compounds in Shokyo and Kankyo

* *Zingiber officinale* Roscoe [Zingiberaceae]

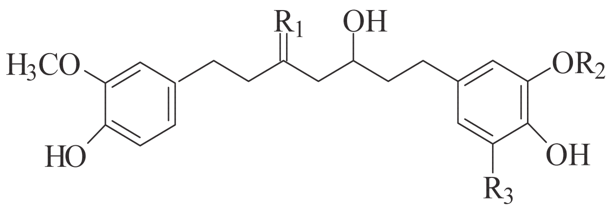
** Yumiko Hori, Yukie Wakabayashi, Minori Oheda, Kayoko Mizui, Motonori Fukumura, Yasuaki Hirai, Yukio Nemoto, Kazuo Toriizuka, and Yoshiteru Ida, *Natural Medicines,* **59,** 229-236 (2005)



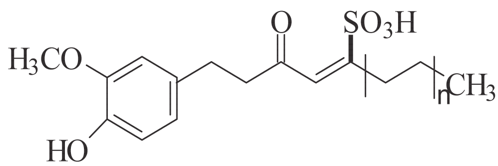
		n
1	6-gingerol	2
2	8-gingerol	3
3	10-gingerol	4



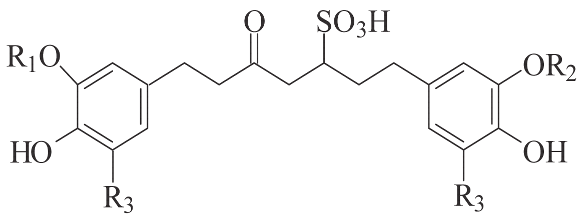
		n
4	6-shogaol	2
5	8-shogaol	3
6	10-shogaol	4



		R_1	R_2	R_3
7	hexahydrocurcumin	O	CH_3	H
8		OH	CH_3	OCH_3
9		O	H	H



		n
10	4-gingesulfonic acid	1
11	6-gingesulfonic acid	2

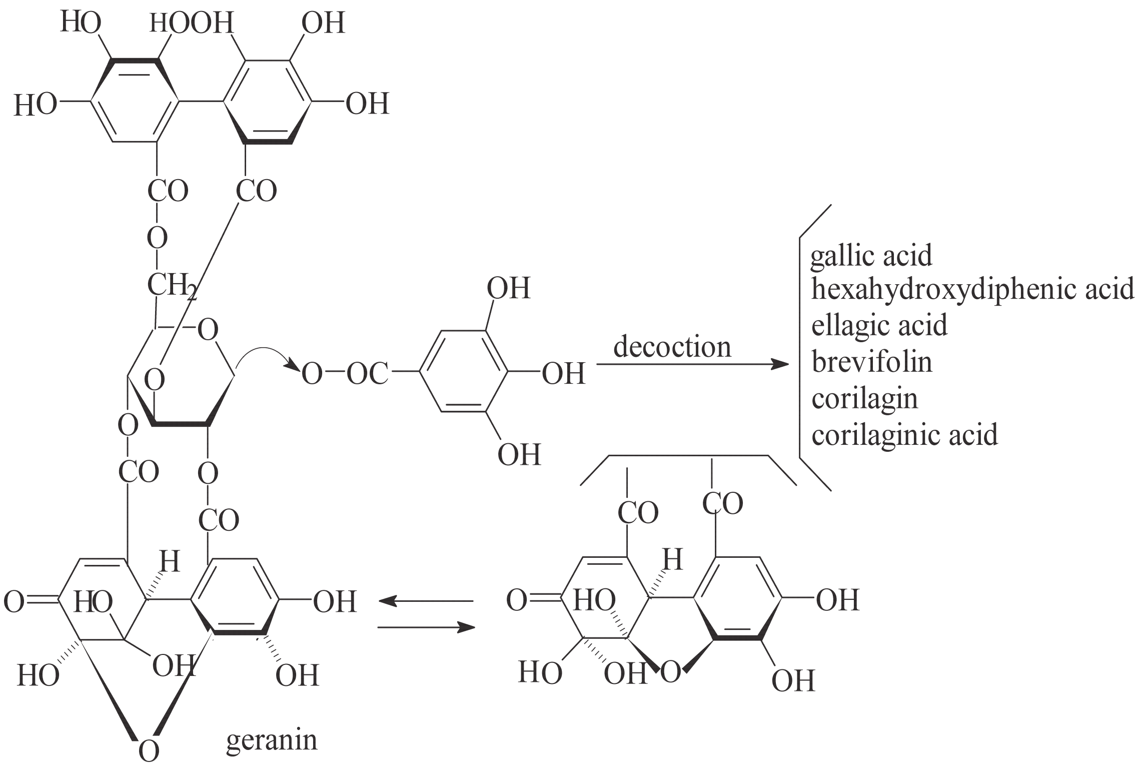


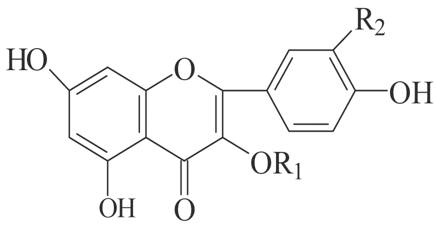
		R_1	R_2	R_3
12	shogasulfonic acid A	CH_3	CH_3	H
13	shogasulfonic acid B	CH_3	H	H
14	shogasulfonic acid C	H	H	H
15	shogasulfonic acid D	CH_3	CH_3	OH

Fig. 1. Sulfonic Compounds in Shokyo and Kankyo

089. 玄草(牻牛兒苗) Geranii Herba

＊*Geranium thunbergii* Siebold et Zuccarini [Geraniaceae]



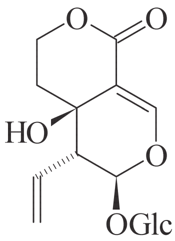


kaempferol : R_1=H, R_2=H
quercetin : R_1=H, R_2=OH
kaempferol-7-rhamnoside : R_1=Rha, R_2=H

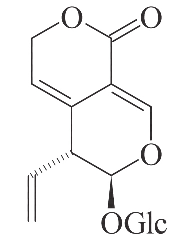
Fig. 1. Chemical structures of compounds

090-1. 當藥 Swertiae Herba

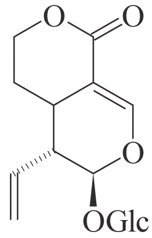
* *Swertia japonica* Makino [Gentianaceae]



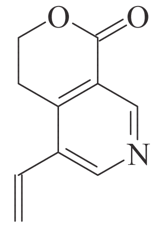
swertiamarin



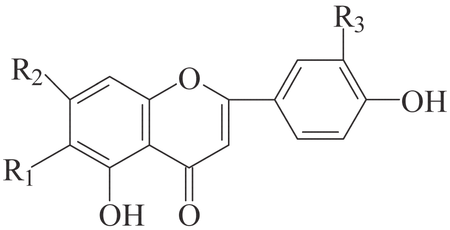
gentiopicroside



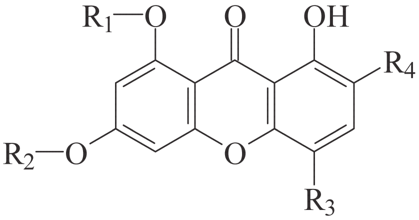
sweroside



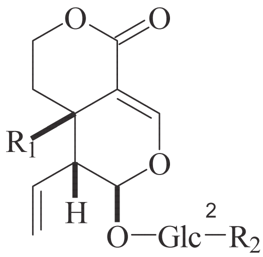
gentianine



	R_1	R_2	R_3
swertisin	Glc	OCH_3	H
swertiajaponin	Glc	OCH_3	OH
homoorientin	Glc	OH	OH
isovitexin	Glc	OH	H



	R_1	R_2	R_3	R_4
norswertianin	H	H	H	OH
swertianin	H	CH_3	H	OH
swertianolin	Glc	CH_3	OH	H



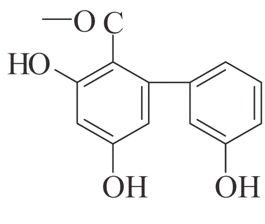
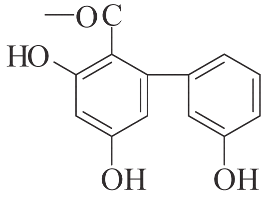
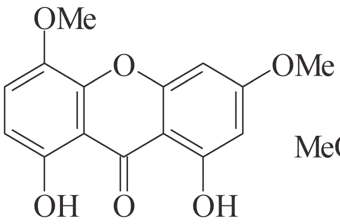
	R_1	R_2
amarogentin	H	
amaroswerin	OH	

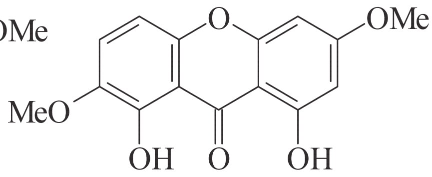
Fig. 1. Chemical structures of compounds

090-2. 當藥 Swrtiae Herba

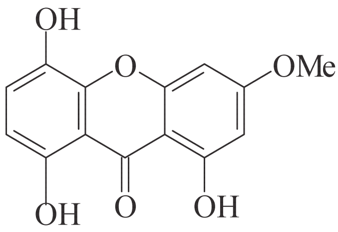
* *Swertia japonica* Makino [Gentianaceae]



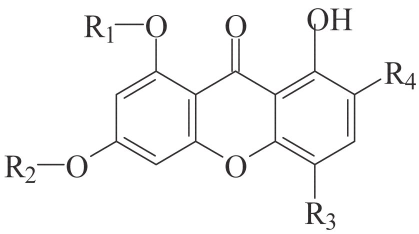
methylbellidifolin



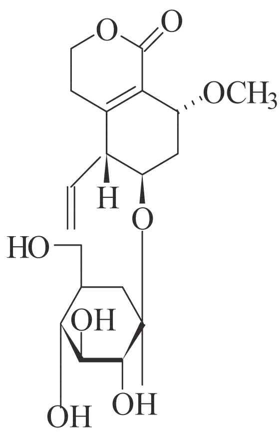
methylswertianin



bellidifolin



	R_1	R_2	R_3	R_4
norswertianin	H	H	H	OH
swertianin	H	CH_3	H	OH
swertianolin	Glc	CH_3	OH	H



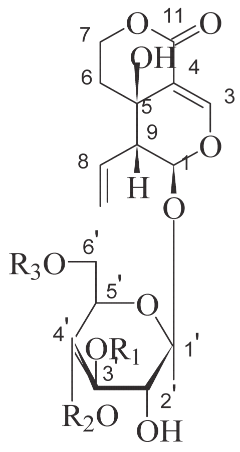
* swertiajaposide A

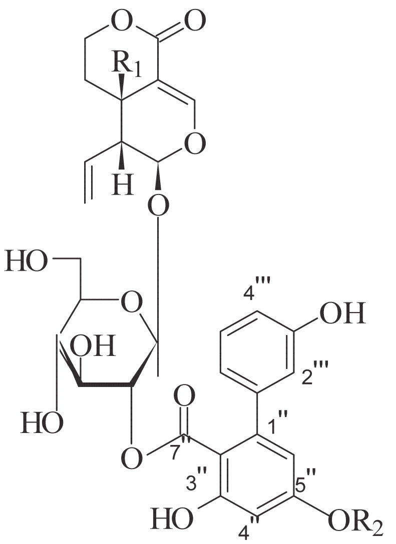
*Kikuchi M et al :
Chem. Pharm. Bull. **53**(1), 48-51(2005)

Fig. 1. Chemical structures of compounds

090-3-1. 當藥 Swertiae Herba

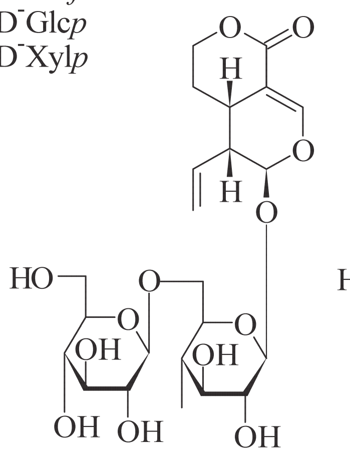
* Studies on the Constituents of *Swertia japonica* Makino
On the Structures of New Secoiridoid Diglycoside,
** M Kikuchi and M Kikuchi,
Chem. Pharm. Bull. **52**(10), 1210-1214 (2004)

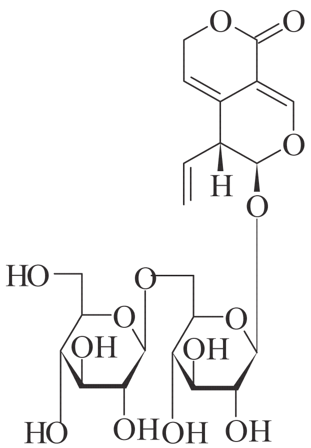




1: R_1=R_2=H, R_3=α-L-Ara*p*
2: R_1=β-D-Glc*p*, R_2=R_3=H
3: R_1=R_3=H, R_2=β-D-Glc*p*
4: R_1=β-D-Gal*p*, R_2=R_3=H
5: R_1=R_2=H, R_3=α-D-Fal*p*
6: R_1=R_2=H, R_3=α-D-Man*p*
7: R_1=R_2=H, R_3=β-D-Fru*f*
8: R_1=R_2=H, R_3=β-D-Glc*p*
9: R_1=R_2=H, R_3=β-D-Xyl*p*
14: R_1=R_2=R_3=H

12: R_1=OH, R_2=β–D-Glc*p*
13: R_1=H, R_2=β–D-Glc*p*
16: R_1=OH, R_2=H





10. swertiapunimarin

11. 6'-***O***^β–D-glucopyranosyl-
-gentiopicroside

Fig. 1. Chemical structures of compounds

090-3-2. 當藥 Swertiae Herba

* Continued 090-3-1

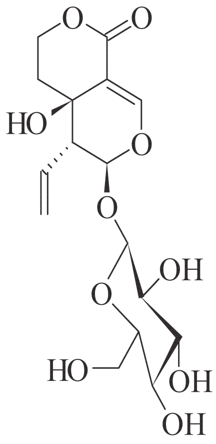
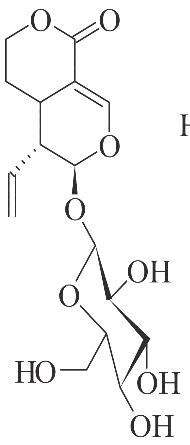
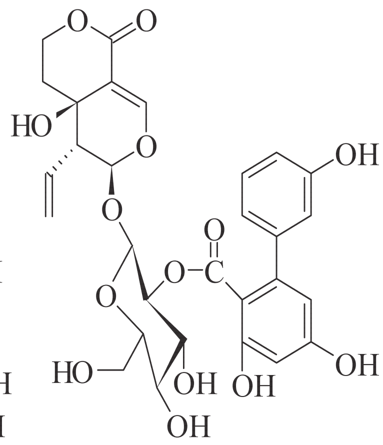
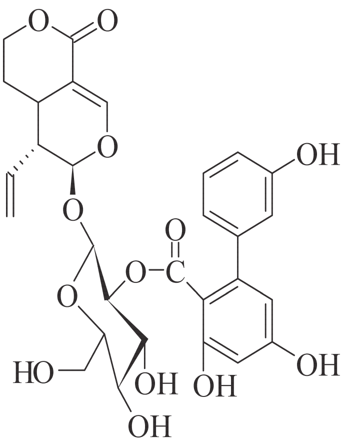
1: 6'-*O*-α–L-arabinopyranosyl-swertiamarin
2: 3'-*O*-β–D-glucopyranosyl-swertiamarin
3: 4'-*O*-β–D-glucopyranosyl-swertiamarin
4: 3'-*O*-β–D-galactopyranosyl-swertiamarin
5: 6'-*O*-α–D-galactopyranosyl-swertiamarin
6: 6'-*O*-α–D-mannopyranosyl-swertiamarin
7: 6'-*O*-β–D-fructofuranosyl-swertiamarin
12:5''-*O*-β–D-glucopyranosyl-swertiamarin
8: 6'-*O*-β–D-glucopyranosyl-swertiamarin
9: chironiside
10: swertiapunimarin
11: 6'-*O*-β–D-glucopyranosylgentiopicroside
13: 5''-*O*-β–D-glucopyranosyl-amaroswerin

090-4-1. 當藥 Swertiae Herba

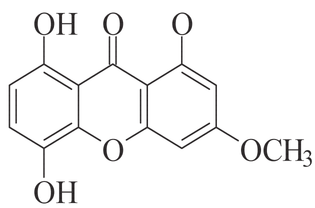
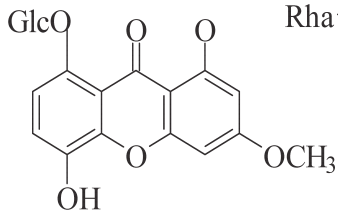
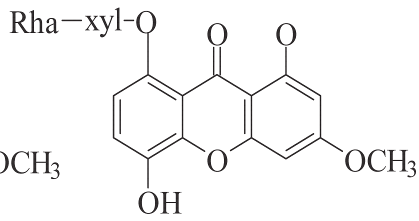
* *Swertia japonica* Makino [Gentianaceae]

** Zhigang Wang, Chaomei Ma, Shuhan Tang, Huai Xiao, Nobuko Kakiuchi, Hiroaki Kida, and Masao Hattori: *Chem. Pharm. Bull.* **56**(4), 485-490 (2008)

*** HPLC-DAD-MS (High Performance Liquid Chromatography-Diode Array Detector-Mass Spectrometry)

1. swertiamarin **2**. sweroside **3**. amaroswerin **4**. amarogentin

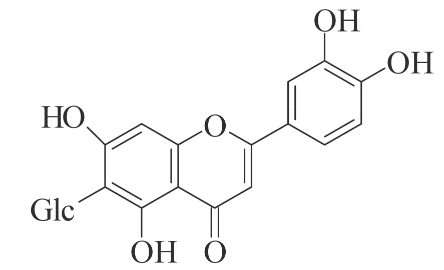




5. bellidifolin **6**. swertianolin **7**. pseudonolin

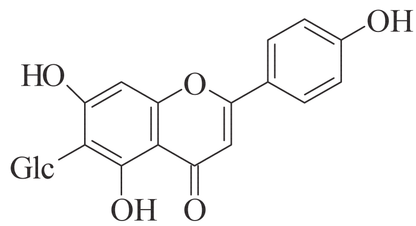
Fig. 1-1. Chemical Structures of Swertia Components **1**--**7**

090-4-2. 當藥 Swertiae Herba

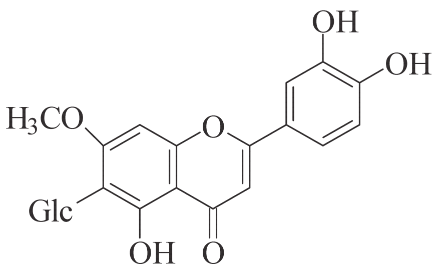
* *Swertia japonica* Makino [Gentianaceae]
** Masao Hattori et al.: *Chem. Pharm. Bull.* **56**(4), 485-490 (2008)
*** Continued 090-4-1.



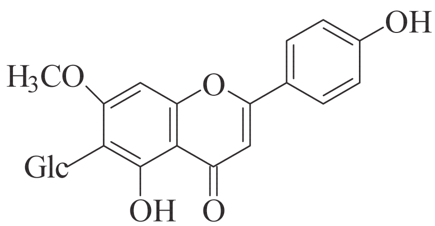
8. isoorientin



9. isovitexin



10. swertiajaponin

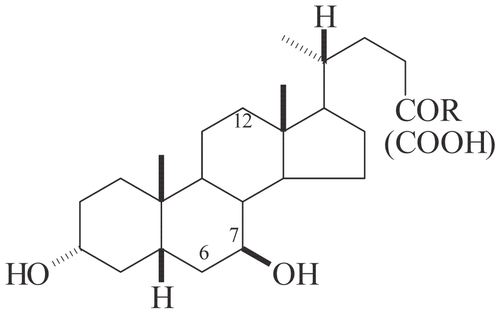


11. swertisin

Fig. 1-2. Chemical Structures of Swertia Components **8--11**

091-1. 熊膽 Fel Ursi

* *Ursus arctos* Linn'e [Ursidae]



tauroursodeoxy cholic acid

R=NH—CH_2—CH_2—SO_3H
(taurine conjugated)
R=NH—CH_2—COOH
(glycine conjugated)

cholic acid 7α–OH, 12α-OH
chenodeoxy cholic acid 7α–OH
ursodeoxy cholic acid 7β–OH

* tauroursodeoxy cholic acid $\xrightarrow{\text{alkali}}$ ursodeoxy cholic acid + taurine

Fig. 1. Chemical structures of compounds

091-2. 熊膽 Fel Ursi

* Novel Bile Acids from Bear Bile Powder *Selenaretos thibetanus* Cuvier [Ursidae] and Bile of Geese

** Dan Bi, Xing-Yun Chai, Yue-Lin Song, Yu Lei, and Peng-Fei Tu: *Chem. Pharm. Bull.* **57**(5) 528-531 (2009)

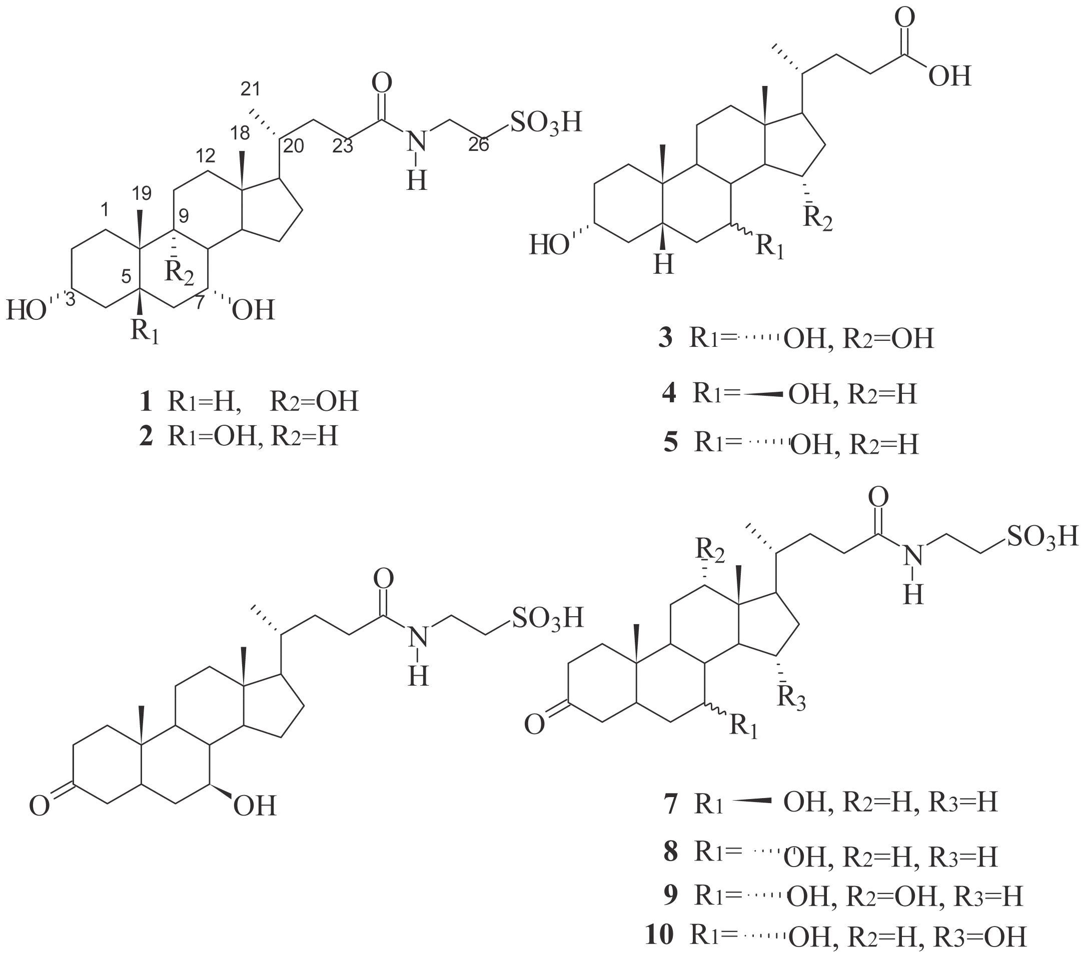


Fig. 1. Structures of Compounds **1--10**

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* Two new bile acids:

(1) tauroselocholic acis and **(2)** tauroansocholic acid.

A new natural bile acid:

(3) cygnocholic acid.

Seven known compounds among six compounds from **bear bile powder**:

(**4**) ursodeoxycholic acid, (**5**) chenodeoxy-cholic acid, (**6**) 2-[[(5β,7α)−7−hydroxy- -3,24-dioxocholan-24-yl]amino]-ethanesulfonic acid, (**7**) tauroursodeoxy-cholic acid, (**8**) taurochenodeoxycholic acid, (**9**) taurocholic acid , and (**10**) 3α,7α,15α−trihydroxy-5β−cholan-24-oyl taurine from **geese bile**.

092. 蘆薈 Aloe

* *Aloe ferox* Mill.(Cape aloes),
A. africana Mill.
A. spicata Baker,
A. vera L. ,
A. barbadensis Mill (Curacao aloes). [Liliaceae]

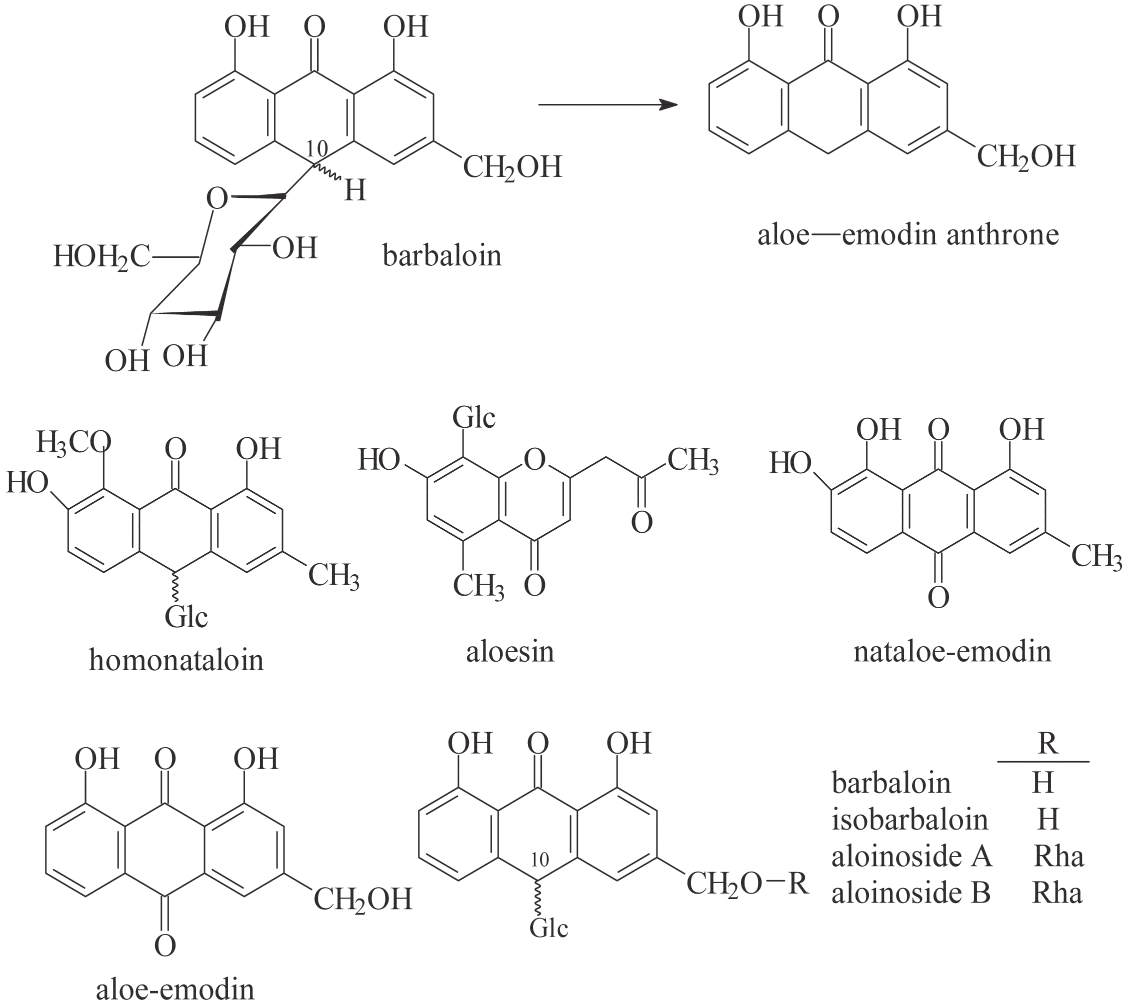
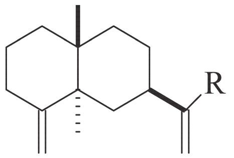


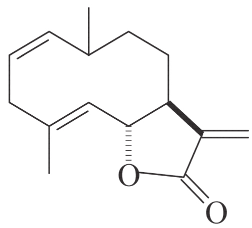
Fig. 1. Chemical structures of compounds

093–1. 木香 Saussureae Radix

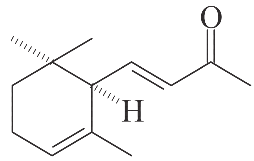
* *Saussurea lappa* Clarke [Compositae]
(=*Aucklandia lappa* Dcne.)



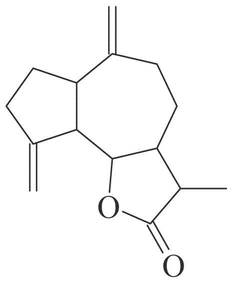
α—costol R=CH_2OH
costic acid R=COOH



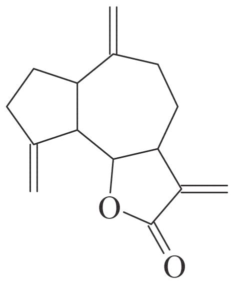
costunolide



α–ionone



costus lactone



dehydrocostus lactone

CH_2=CH.$(CH_2)_5$.$(CH$=$CHCH_2)_3$.CH_2
aplotaxene
(=heptadeca-1,8,11,14-tetraene)

Fig. 1. Chemical structures of compounds

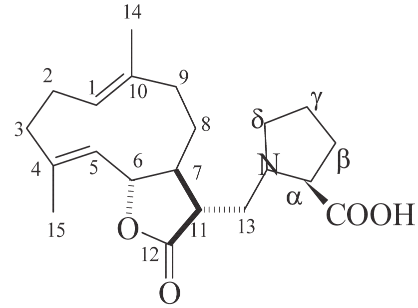
093-2. 木香 Saussureae Radix

* *Saussurea lappa* Clarke [Compositae]

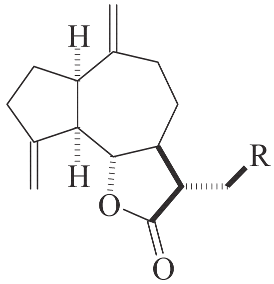
** Saussureamines A, B, C, D, and E, New Anti-ulcer Principles from Saussureae Radix

*** M. Yashikawa, S. Hatakeyama, Y. Inoue, and J. Yamahara, *Chem. Pharm. Bull.* **41**(1), 214-216 (1993)

****Amino acid-sesquiterpene adducts:

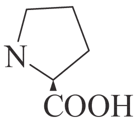


saussureamine A

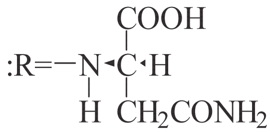


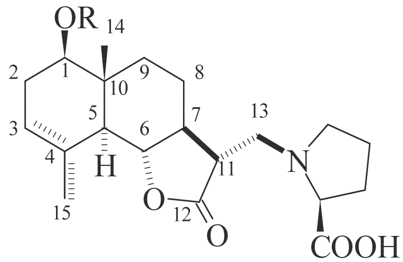
saussureamine B

: R=



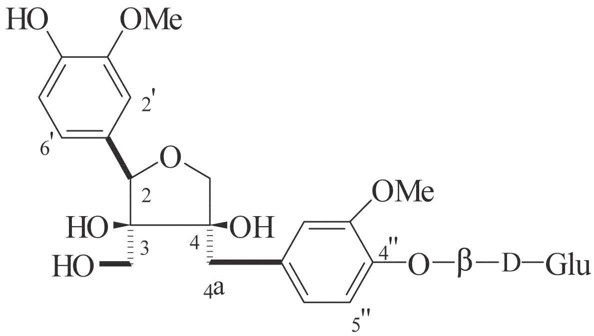
saussureamine C





saussureamine D : R=H, Δ^{3}

sausuureamine E : R=H, $\Delta^{4(15)}$



(-)-massoniresinol 4"-***O***—β-**D-Glu**copyranoside

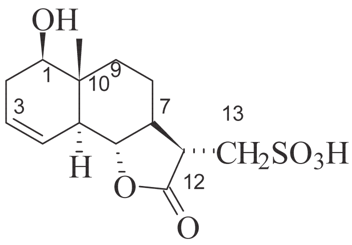
(* Lignan glycoside)

Fig. 1. Chemical structures of compounds

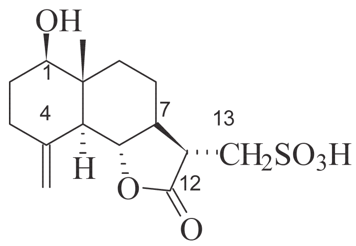
093-3. 木香 Saussureae Radix

* *Saussurea lappa* Clarke [Compositae]
(=*Aucklandia lappa* Dcne.)

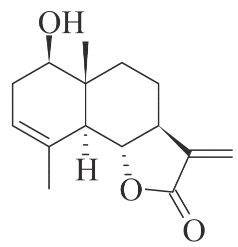
** Yue-hu Pei et al. *Chem. Pharm. Bull.* **53**(7), 841-842 (2005)



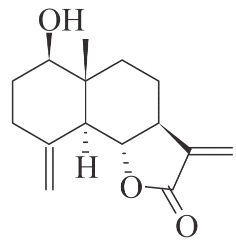
1. 13-sulfo-sihydrosantamarine



2. 13-sulfo-dihydroreynosin



3. santamarine



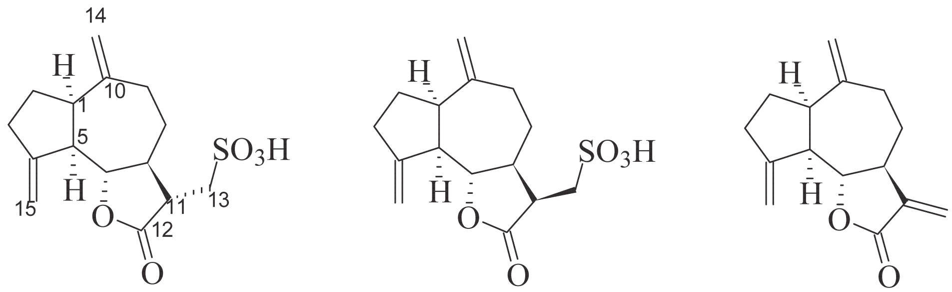
4. reynosin

Fig. 1. Chemical structures of compounds **1**--**4**

093-4. 木香 Saussureae Radix

* Sulfonated Guaianolides from *Saussurea lappa* Clarke [Compositae]

** Fei Wang, Zheng-Hong Xie, Yuan Gao, Xue-Lian Cheng, and Ji-Kai Liu: *Chem. Pharm. Bull.* **56**(6), 864-865 (2008)

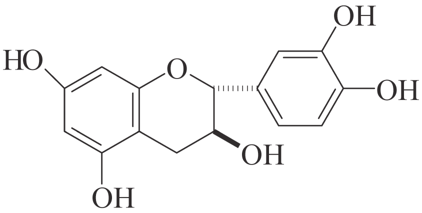


Sulfocostunolide A (**1**)　　Sulfocostunolide B (**2**)　　Dehydrocostus lactone (**3**)

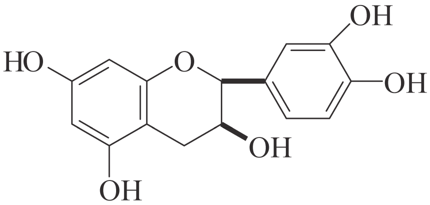
Fig. 1. Structures of Compounds **1**--**3**

094-1. 兒茶 Gambir (阿仙藥)

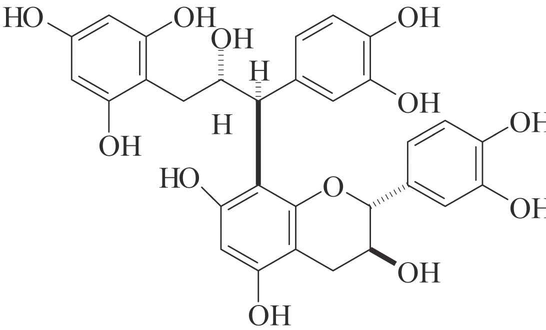
* *Uncaria gambir* Roxb. [Rubiaceae]



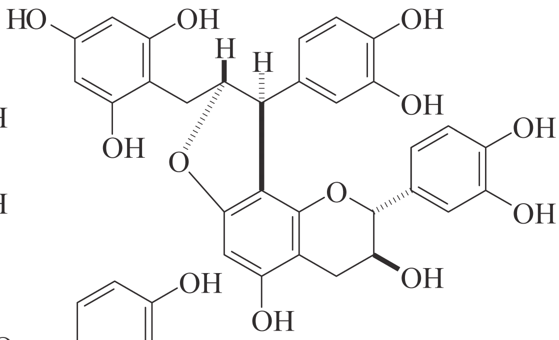
(+)-catechin



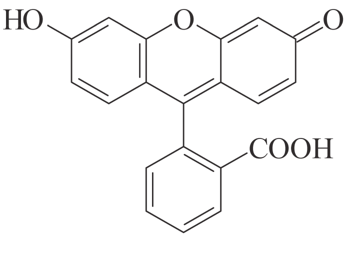
(+)-epicatechin



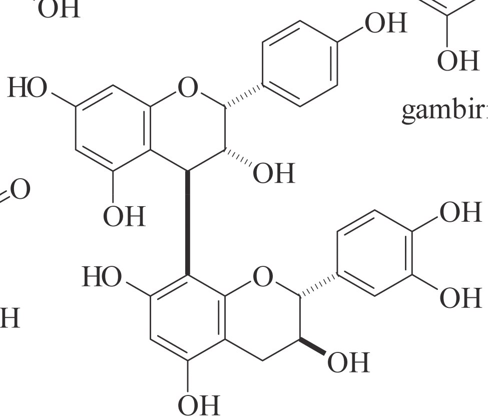
gambiriin A_1



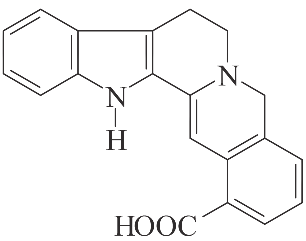
gambiriin B_1



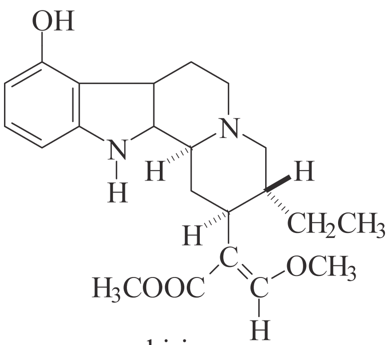
gambir-fluorescein



gambiriin C



gambirtannine



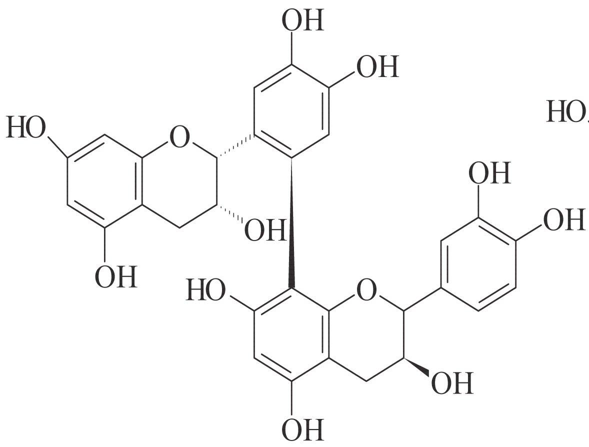
gambirine

Fig. 1. Chemical structures of compounds

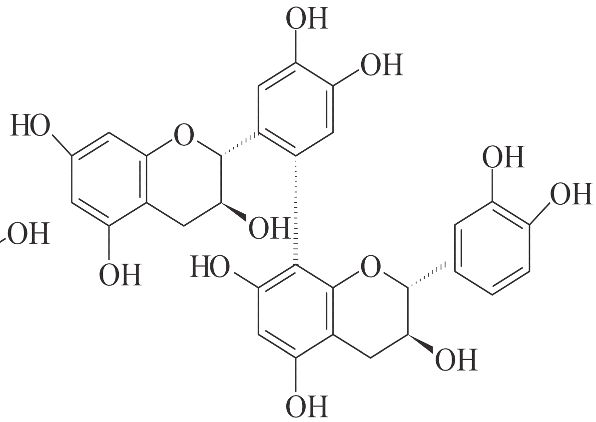
094-2. 兒茶 Gambir (阿仙藥)

**Uncaria gambir* Roxb.[Rubiaceae]

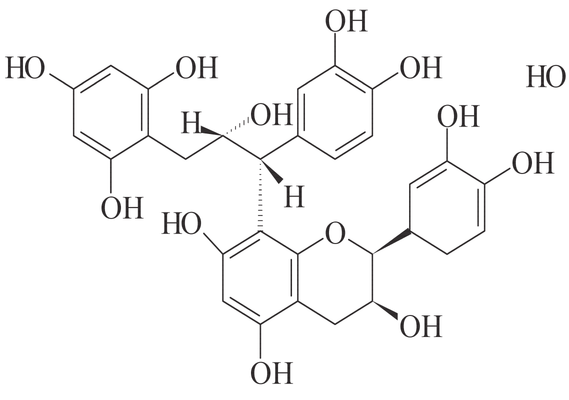
** Shoko Taniguchi, Kayo Kuroda, Kou-ichi Don, Masahiro Tanabe, Takashi Shibata, Takashi Yoshida, and Tsutomu Hatano:
Chem. Pharm. Bull. **55**(2), 268-272 (2007)



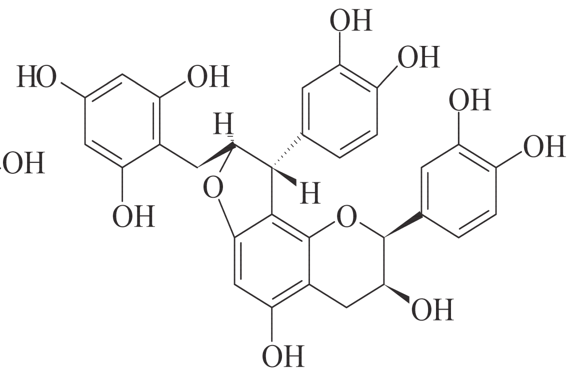
procyanidin B1



procyanidin B3



gambirin A2

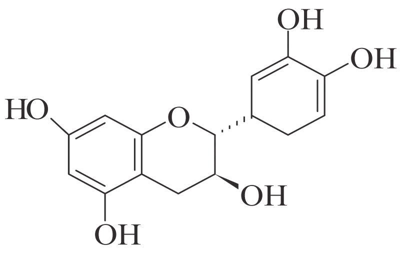


gambirin B2

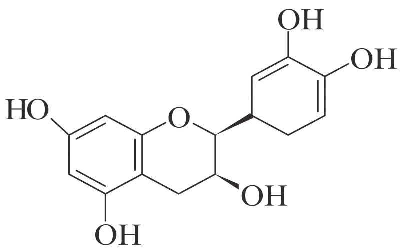
Fig. Revised Structures of Gambiriins A1, A2, B1, and Chalcane-Flavan Dimers from Gamber

094-3. 兒茶 Evaluation of Gambir Quality Based on Quantitative Analysis of Polyphenolic Constiturents (阿仙藥)

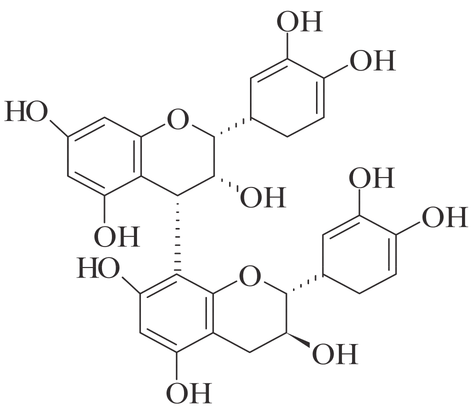
* Shoko Taniguchi, Kayo Kuroda, Kou-ichi Doi, Kazutoshi Inada, Naomi Yoshikado, Yuji Yoneda, Masahiro Tanabe, Takashi Shibata, Takashi Yoshida, and Tsutomu Hatano:
YAKUGAKU ZASSHI, **127**(8), 1291-1300 (2007)



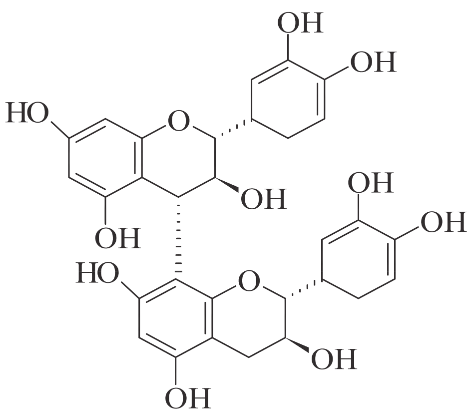
(+)-Catechin (**1**)



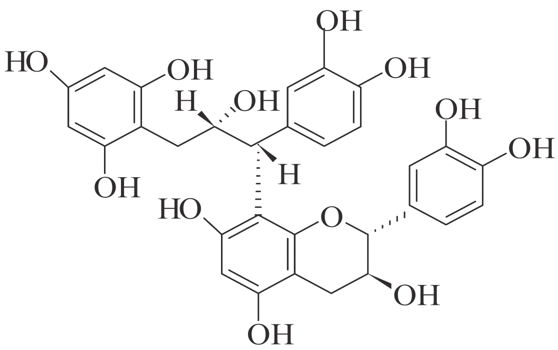
(+)-Epicatechin (**2**)



Procyanidin B1 (**3**)



Procyanidin B3 (**4**)



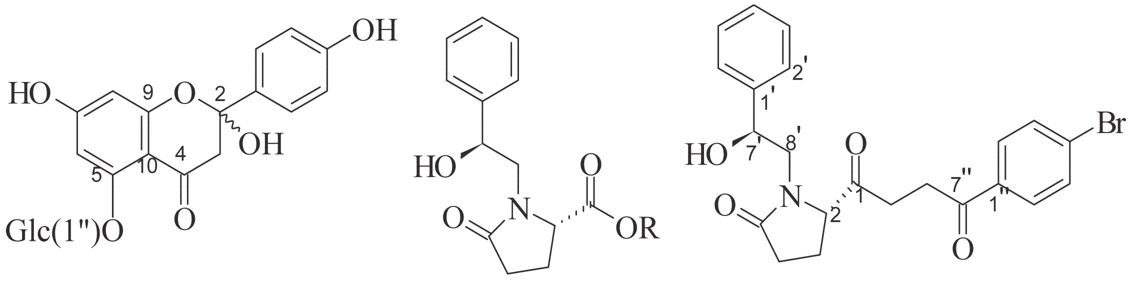
Gambirin A1 (**5**)

Fig. 1. Compounds **1**--**5** were isolated from Gambir, and **2** and **5** were also obtained upon heating of aqueous solution of catechin

095-1. 營實 Rosae Multiflorae Fructus

* *Rosa multiflora* Thunberg [Rosaceae]

** Susumu Kawakami, Katsuyoshi Matsunami, Hideaki Otsuka, Masatoshi Kawahata, Kentaro Yamaguchi: *J Nat Med* **63**(1) 46-51 (2009)



1

	R
2	H
3	CH_3

2a

Fig. 1. Structures of new compounds, **1**, **2** and *p*-bromophenacyl ester of **2** (2a)

* (**1**) 2-Hydroxynaringin 5-***O***-β–D-glucopyranoside

095-2. 營實根 Rosae Multiflorae Radix

Rosa multiflora Radix

* Kwan Hee Park, Mi Sook Jeong, Kwang Jun Park, Young Wook Choi, Seong Jun Seo, and Min WongLee: *Biol. Pharm. Bull.* **37**(1) 178-183 (2014)

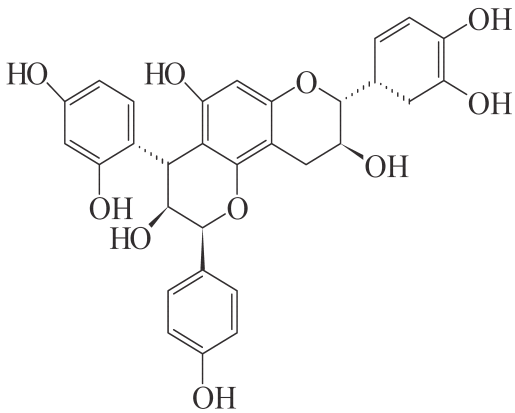


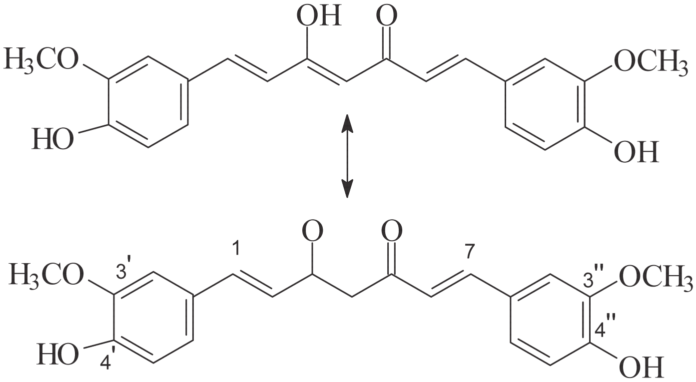
Fig. 1. Structure of RM-3, Isolated from the Roots of *Rosa multiflora* Thunb. (RM)

---

* The roots of *Rosa multiflora* Thunb. (RM) has been used in Oriental traditional medicins as remedies for scabies, rheumatic althralgia and stomatis which were practicaly related with today's inflammatory and alergic disease.
* RM root extract (RME) and its major constituent, 2-(3,4-dihydroxyphenyl)-6-(4-hydroxyphenyl)-8-(2,4-dihydroxyphenyl)-2,3-*trans*-6,7-*cis*-7,8-*trans*-3,4,7,8-tetrahydro-2-*H,*6*H*-pyrano[2,3-*f*] chromen-3,7,9-triol (RM-3) belongs to condensed tannins.

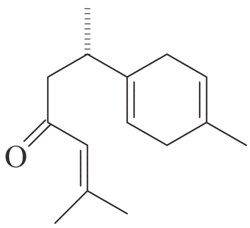
096-1 鬱金 Curcumae Tuber (温鬱金、川鬱金)

* *Curcuma aromatica* Salisb.
C. *longa* L. (=*C. domestica* Valeton) [Zingiberaceae]

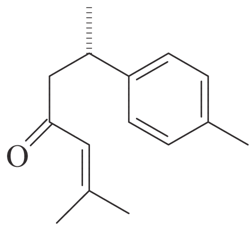


Keto-enol tautomeric forms of Curcumin

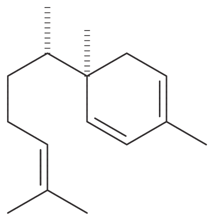
* Curcumin [1,7-bis-(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione]



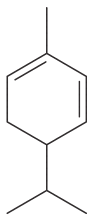
turmerone



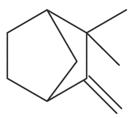
(+)-ar-turmerone



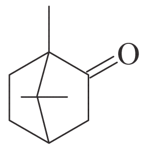
zingiberene



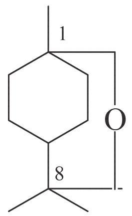
(+)-α−pjellandrene



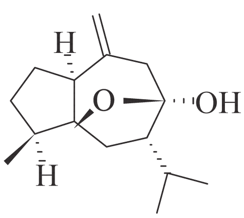
camphene



camphor



cineole

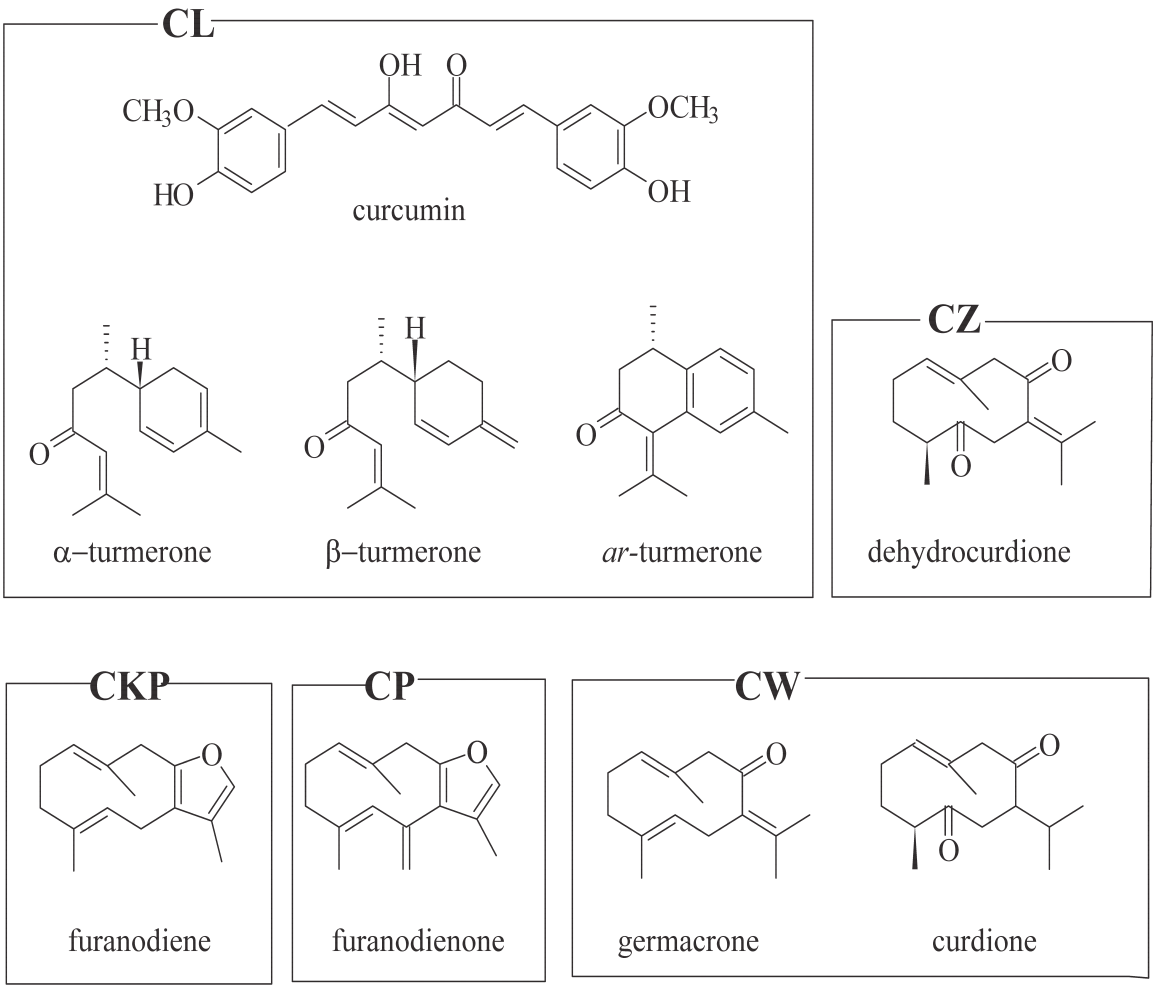


curcumol

* Hideji Itokawa, Kuo-Hsiung Lee et al:
Journal of Natural Medicines, **62**(3), 271-272 (2008)

096-2. 鬱金属 Effects of *Curcuma* Drugs on Vasomotion in Isolated Rat Aorta

*Y. Sasaki, H. Goto, C. Tohda, F. Hatanaka, N. Shibahara, Y. Shimada, K. Terasawa, and K. Komatsu: *Biol. Pharm. Bull.* **26**(8), 1135-1143 (2003)

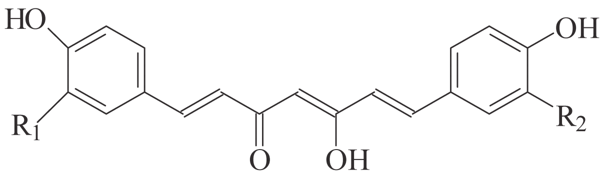


* CL : *Curcuma longa*
CKP: *C. kwangsinensis*
CP : *C. phaeocaulis*
CW : *C. wenyujin*
CZ : *C. zedoaria*

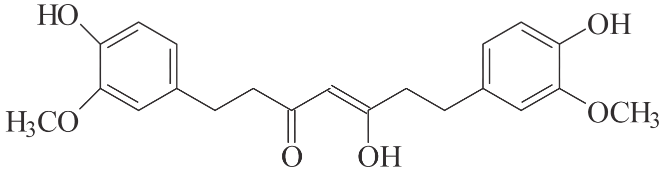
** *Curcuma* drug: Oketsu; nitric oxide; Vasomotionak effect; Sesquiterpene:curcumin

096-3-1. 川鬱金 Comparative Antioxidant Activities of Curcumin and Its Demethoxy and Hydrogenated Derivatives from *Curcuma longa* Linn. [Zingiberaceae]

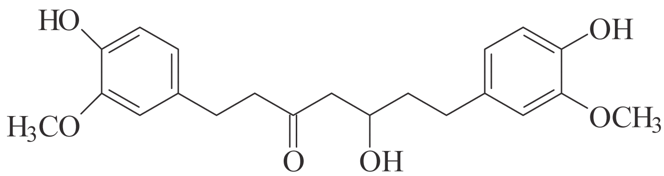
* Poorichaya Somparn, Chada Phisalaphong, Somjai Nakornchai, Supeenun Unchern, and Noppawan Phumala Morales :
Biol. Pharm. Bull. **30**(1), 74-78 (2007)



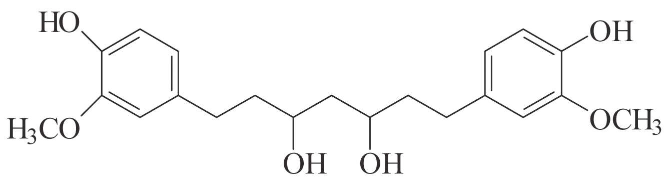
Curcumin: R_1=R_2=OCH_3
Demethoxycurcumin: R_1=H, R_2=OCH_3
Bisdemethoxycurcumin: R_1=R_2=H



Tetrahydrocurcumin



Hexahydrocurcumin



Octahydrocurcumin

Fig. 1. Chemical structures of compounds

096-3-2. 川鬱金 New Sesquiterpenes and Calebin Derivatives from *Curcuma longa* L. [Zingiberaceae]

* YongChi Zeng, Feng Qiu, Kyoko Takahashi, JianMu Liang, GeXia Qu, and XinSheng Yao: *Chem. Pharm. Bull.* **55**(6), 940-943 (2007)

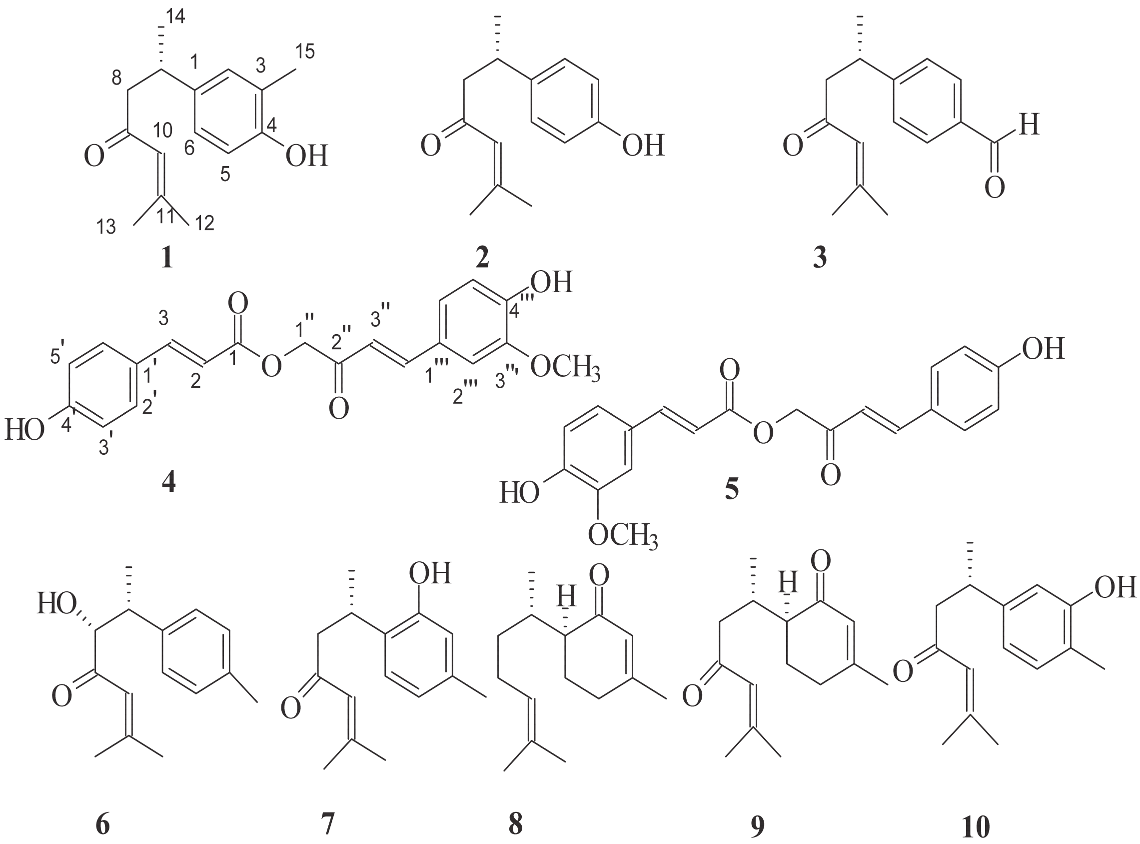


Fig. 1. Chemical structures of compounds **1--10**

* *New Sesquiterpenes and Calebin Derivatives:*

1. (6*S*)-2-methyl-6-(4-hydroxyphenyl-3-methyl)-2-hepten-4-one
2. (6*S*)-2-methyl-6-(4-hydroxyphenyl)-2-hepten-4-one
3. (6*S*)-2-methyl-6-(4-formylphenyl)-2-hepten-4-one
4. 4''-(4'''-hydroxyphenyl-3'''-methoxy)-2''-oxo-3''-butenyl-3-(4'-hydroxyphenyl)-propenoate
5. 4''-(4'''-hydroxyphenyl)-2''-ozo-3''-butenyl-3-(4'-hydroxyphenyl-3'-methoxy)-propenoate

** *Known Compounds:*

6. 5-hydroxyl-ar-turmerone; **7**. turmeronol B; **8**. bisabolone; **9**. bisabolone-4-one; 1**0**. turmeronol.

096-4. 温鬱金 Compound isolated from *Curcuma aromatica* Salisb. inhibit human P450 enzymes

＊ Yoshinori Bamba, Young Sook Yun, Akira Kunugi, Hideshi Inoue:
J Nat Med **65**(3-4) 583-587 (2011)

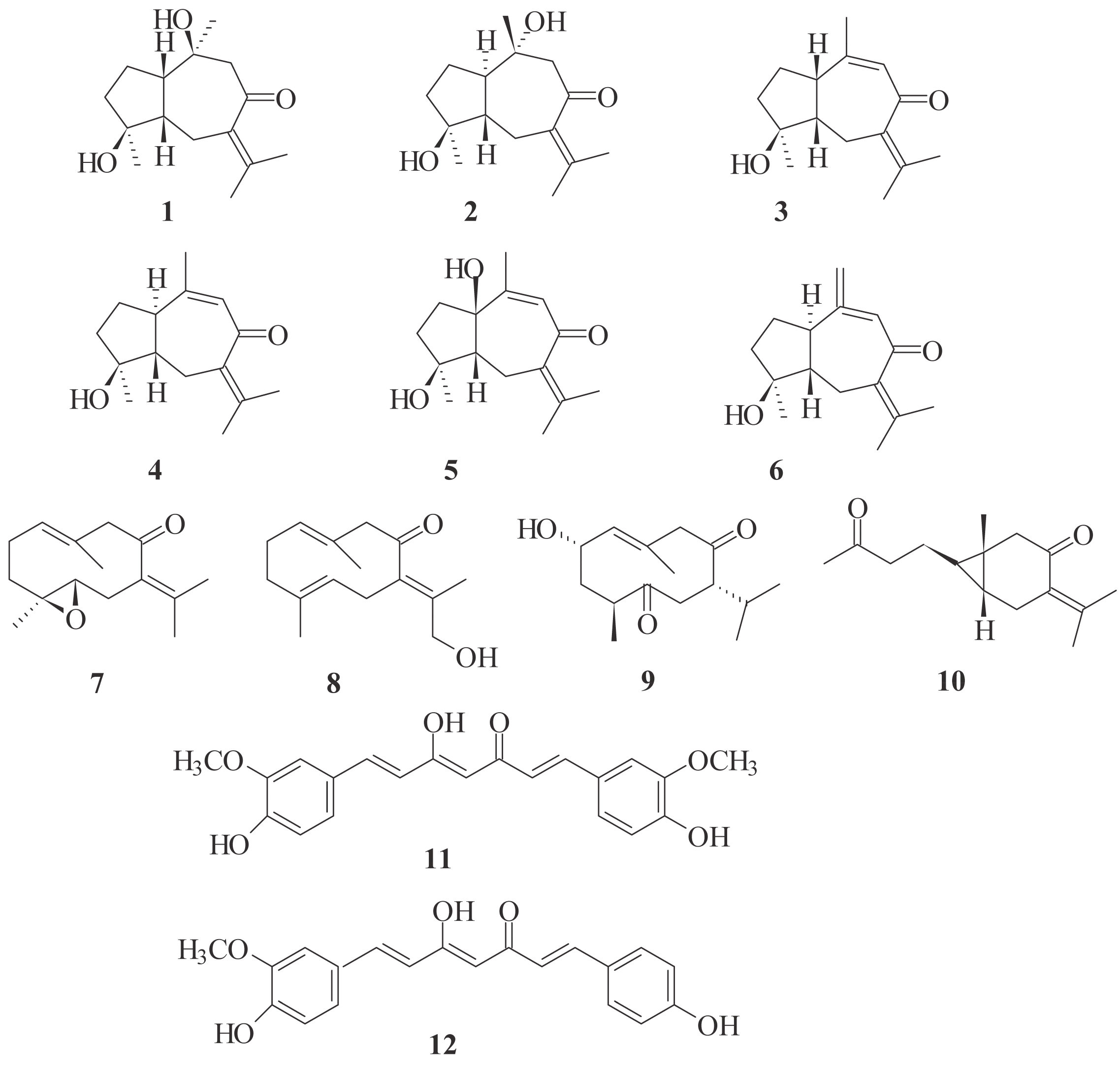


Fig. 1. The compounds isolated from *Curcuma aromatica* Salsb.

＊ **Ten Sesquiterpenes** (**1-10**) and t**wo Curcuminoids** (**11**and**12**) were isolated from the rhizomes of *Curcuma aromatica* Salisb. and identified.
isozedoarondiol (**1**), zedoarondiol (**2**), epiprocurcumenol (**3**), procurcumenol (**4**), aergigidiol (**5**), isoprocurcumenol (**6**), (4*S*,5*S*)-(+)-germacrone -4,5-epoxide (**7**), 13-hydroxy-germacrone (**8**), (2*S*)-2-hydroxycurdione (**9**), curcumenone (**10**), curcumin (**11**), and demthoxy-curcumin (**12**).

096-5. 鬱金 Microbial Conversion of Curcumin in to Colorless Hydroderivatives by the Endophytic Fungus *Diaporthe* sp. Associated with *Curcuma longa*

* Shoji Maehara, Michiteru Haraguchi, Chinami Kitamura, Tetsuro Nagoe, Kazuyoshi Ohashi, and Hirotaka Shibuya:
Chem. Pharm. Bull. **59**(8) 1042-1044 (2011)

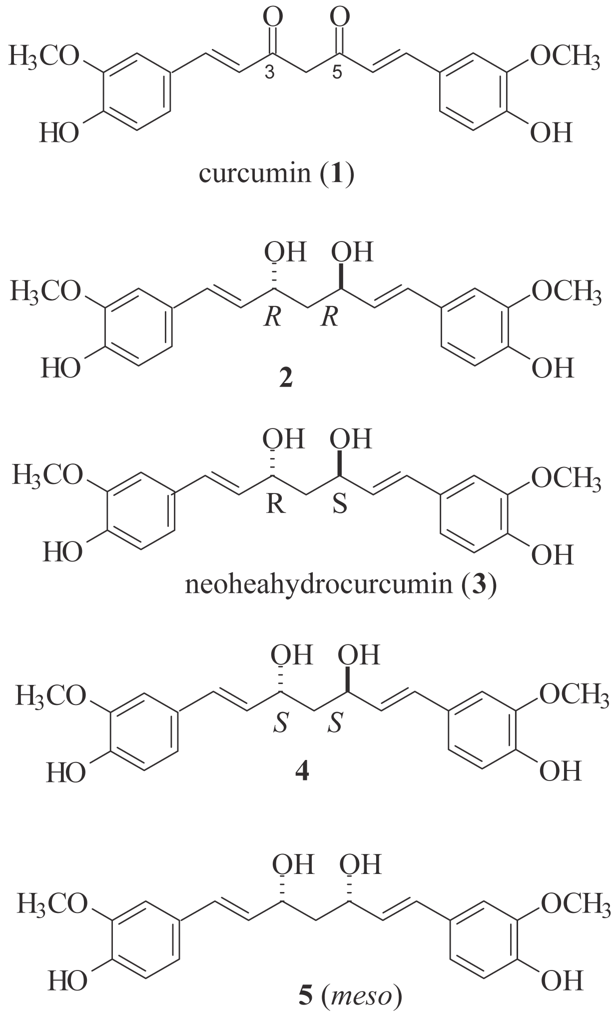


Fig. 1. Chemical Structures of Curcumin (**1**) and Its Microbial Conversion Produvtives **2, 3, 4** and **5**

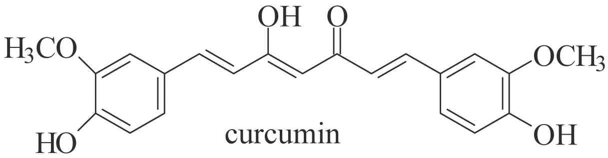
* Microconversion of curcumin (**1**) using endophytic fungi associated with the rhizome of *Curcuma longa* (Zingiberaceae).Found that *Diaporthe* sp., an endophytic filamentous fungus, converts curcumin (**1**) in to four coloress derivatives, mamely (3*R*),5*R*)-tetrahydrocurcumin (**2**), a novel (3*R*,5*S*)-hexahydro-curcumin (**3**) named neohexahydrocurcumin, (3*S*,5*S*)-octahydrocurcumin (**4**) and *meso*-octahydrocurcumin (**5**).

096-6. 鬱金 Curcuminoid:

1. Curcumae Tuber

* *Curcuma aromatica* Salisb. [Zingiberaceae]
C. *longa* L.

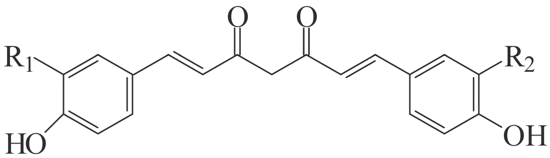
** Curcuminoid: (Yellow pigment: curcumin)



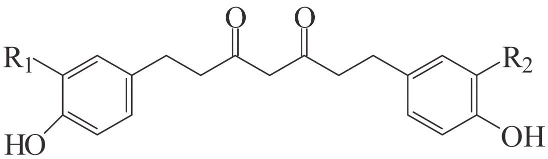
curcumin

2. Curcuminoid analogs

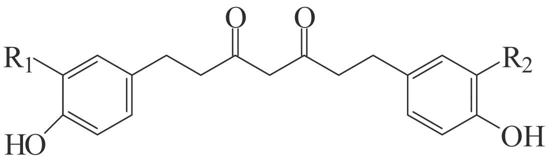
* Jiraporn Tocharus et al: *J Nat Med* **66**(2) 400-405 (2012)



1. R_1=R_2=OMe (Curcumin)
2. R_1=H, R_2=OMe (Demethoxycurcumin)
3. R_1=R_2=H (Bisdemrthoxycurcumin)
4. R_1=OH, R_2=OMe (Mono-*O*-demethylcurcumin)
5. R_1=R_2=OH (Di-*O*-demethylcurcumin)
6. R_1=H, R_2=OH (*O*-Demethyldemethoxycurcumin)



7. R_1=R_2=OMe (Tetrahydrocurcumin)
8. R_1=H, R_2=OMe (Tetrahydromethoxycurcumin)
9. R_1=R_2=H (Tetrahydrobisdemethoxycurcumin)

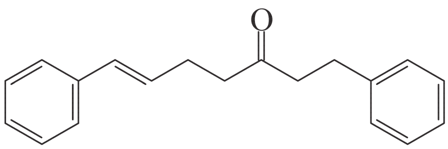


10. R_1=R_2=OMe (Hexahydrocurcumin)
11a. R_1=H, R_2=OMe (Hexahydrodemethoycurcumin)
11b. R_1=OMe, R_2=H (Hexahydrodemethoxycurcumin, isomer 2)
12. R_1=R_2=H (Hexahydrobisdemethoxycurcumin)

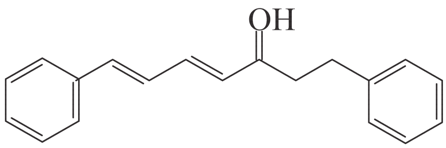
Fig. 1. Chemical structures of parent curcuminoids **1--3** and modified analogs **4--12**

096-7. 鬱金属 *Curcuma comosa* [Zingiberaceae]

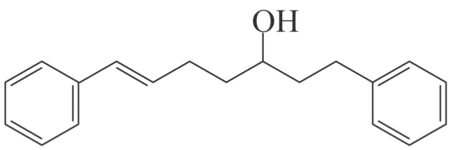
* Jian Su, Bungorn Sripanidkulchai et al : *J Nat Med*: **66**(3) 468-475 (2012)



(6*E*)-1,7-diphenylhept-6-en-3-one (DPH1)



(4*E*,6*E*)-1,7-diphenylhepta-4,6-dien-3-ol (DPH2)



(6*E*)−1,7−diphenylhept-6-en-3-ol (DPH3)

Fig. 1. Chemical structures of the three major diarylheptanoids from *Curcuma comosa* extract

097-1. 肉豆蔻 Myristicae Semen

* *Myristica fragrans* Houttuyn [Myristicaceae]

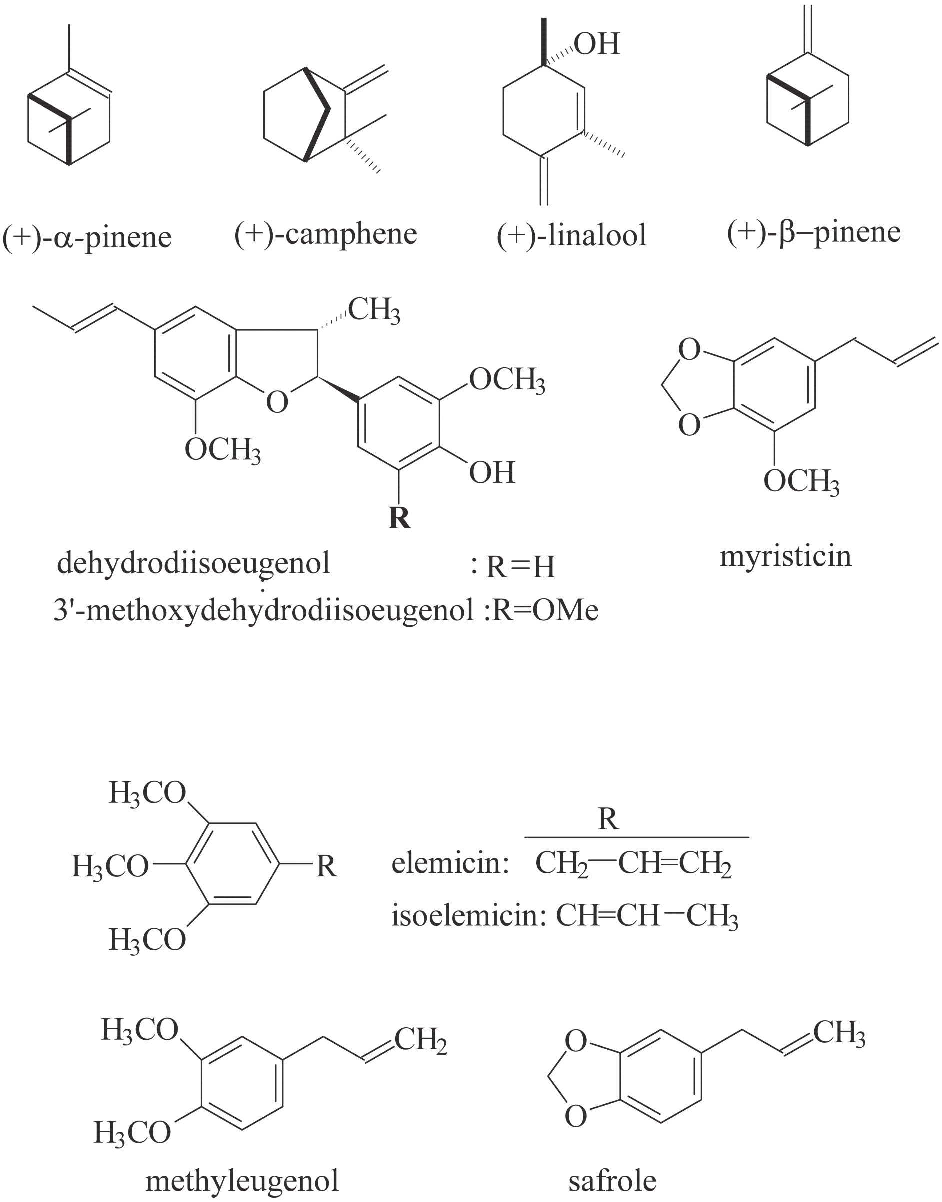
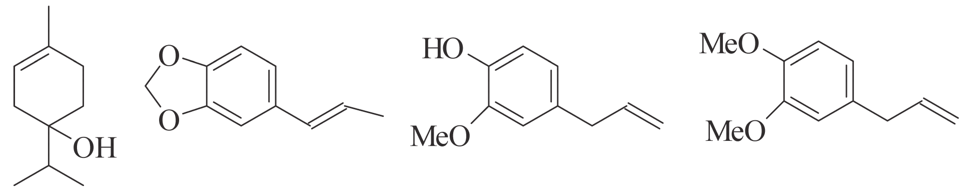


Fig. 1. Chemical structures of compounds

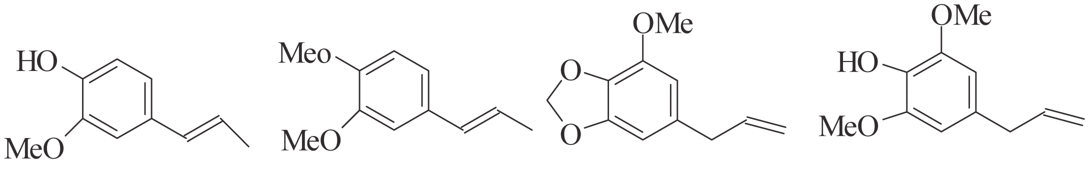
097-2. 肉豆蔻 Myristicae Semen

* *Myristica fragrans* Houttuyn [Myristicaceae]

** Aki Maeda, Shinichi Tanimoto, Tomo Abe, Shunsuke Kazama, Hisayuki Tanizawa, and Masato Nomura: *YAKUGAKU ZASSHI*, **128**(1), 129-133 (2008)



(**3**) (**5**) (**6**) (**7**)



(**8**) (**9**) (**10**) (**12**)

Fig. 1. Chemical Structures of Major Components in Ethyl Acetate Extract

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* (**1**): Linalool, (**2**). *trans*-Carane-*cis* 4-ol, (**3**). Terpinene 4-ol, (**4**). α−Terpineol, (**5**). Isosafrole, (**6**). Eugenol, (**7**). Methyl eugenol, (**8**). Isoeugenol, (**9**). Methyl isoeugenol, **(10)**. Myristicin, (**11**). Elemicin, (**12**). 4-Allyl-2,6-methoxyphenol, (**13**). Tetradecanoic acid, (**14**). Dibutyl phthlate, (**15**). 3,4,5-Trimethoxy benzeneethanamine, (**16**). Oleic acid, (**17**). 1-(2,4-dimethoxyphenyl)-1-propanone, (**18**). 9-Octadecenoic acid, (**19**). Dehydro-diisoeugenol, (**20**). 2,4,7-Trimethyl carbazole, (**21**). eugenyl acetate, (**22**). *p,p*-Di (1-aziridinyl)-N-(4-methylphenyl)phosphinic amide.

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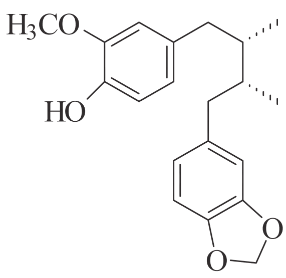
* Dried rhizomes of *Myristica fragrans* Houtt.

** Yumi Cho, Kyu-Hoi Kim, Jae-Seok Shim, and Jae-Kwan Hwang: *Biol. Pharm. Bull.* **31**(5), 986-989 (2008);

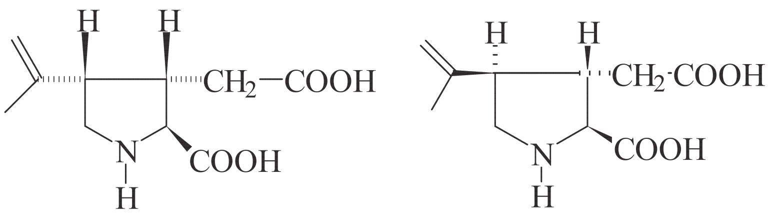
***Kyunf-Fun Lee et al: *ibid* **35**(10), 1669-1675 (2012)



Macelignan

098. 海人草 Digenea

* *Digenia simplex* C. Agardh [Rhodomelaceae]

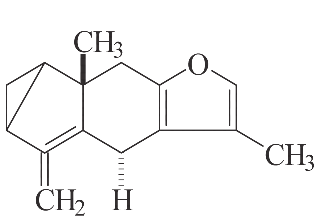


α—kainic acid α—allokainic acid

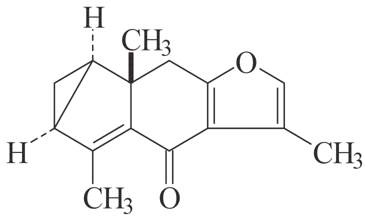
Fig. 1. Chemical structures of compounds kainic acids

VI-2-1. 烏藥 Linderae Radix

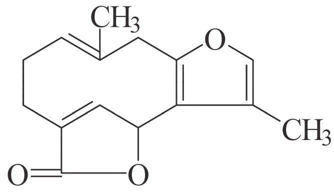
* *Linderaa strychnifolia* DC. [Lauraceae]



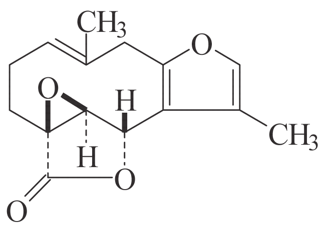
lindenene



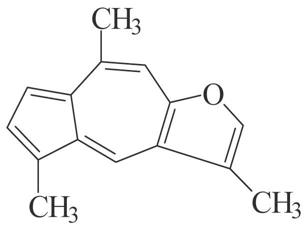
lindenenone



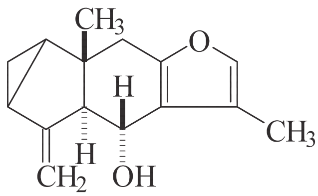
linderalactone



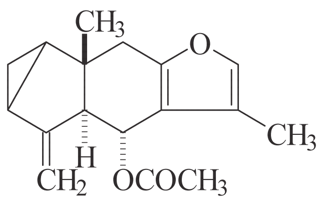
linderane



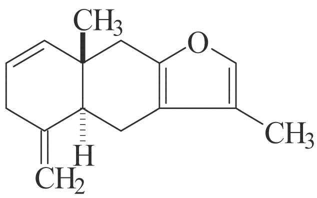
linderazulene



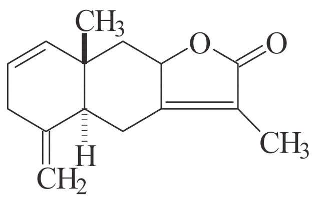
linderene(=linderenol)



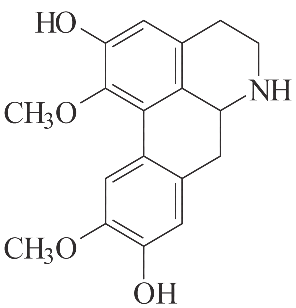
linderene acetate



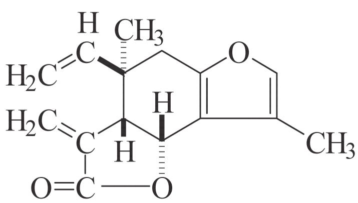
lindestrene



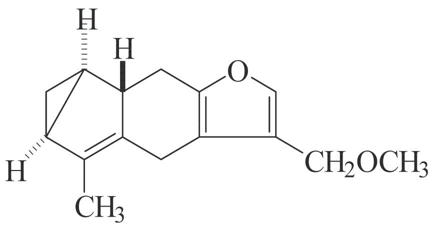
lindestrenolide



laurolitsine



isolinderalactone

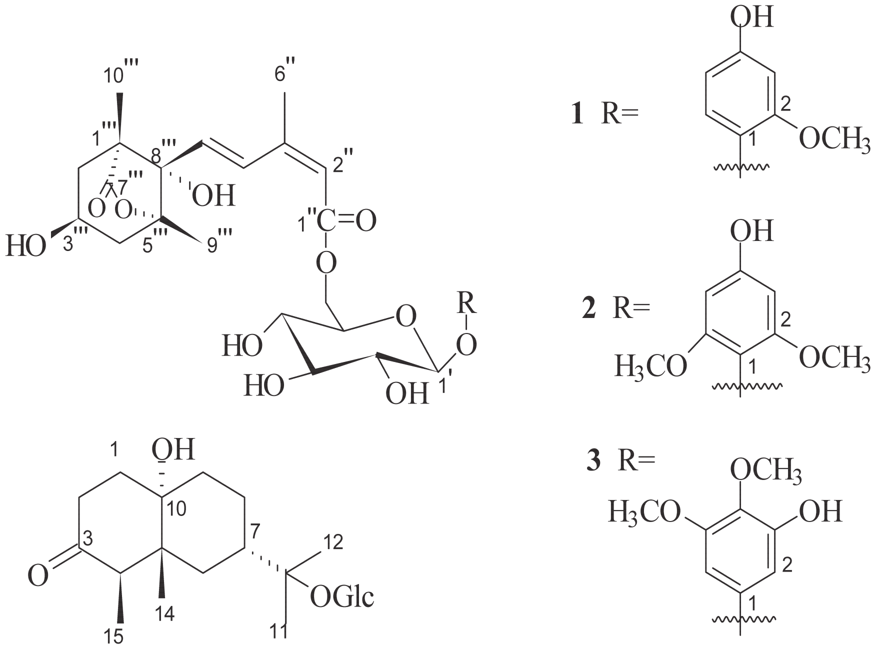


isolinderxide

Fig. 1. Chemical structures of compounds

VI-2-2. 烏藥 Conjyugates of abscisic acid derivative and phenolic glucosides, and a new sesquiterpene glucoside from *Lindera strychnifolia* Fermandex-Villar [Lauraceae]

* Akinori Mimura, Hitomi Sumioka, Katsuyoshi Matsunami, Hideaki Otsuka:
J Nat Med **64**(2) 153-160 (2010)



4

Fig. 1. Structures of interest

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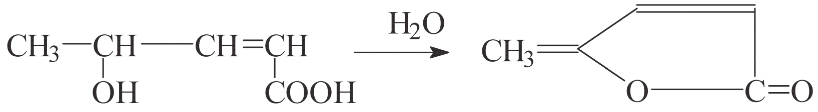
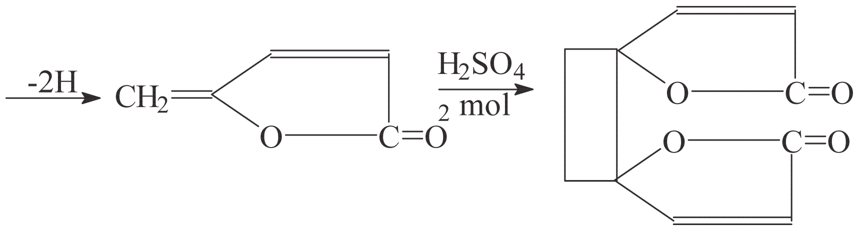
* Three conjugateds of the abscisic acid derivative:
  (2*Z*,4*E*)-5-[(1*S*,3*S*,5*R*,8*S*)-3,8-dihydroxy-1,5-dimethyl-7-oxo-6-oxabicyclo[3,2,1]octan--8-yl]-3-methylpenta-2,4-dienoic acid and phenolic glucosides (**1**-**3**).
* Eremophilane-type sesquiterpene glucoside (**4**).
* Known Compounds (5-1**0**):
  * Two Phenolic glycosides: isotachioside (**5**) and 2,6-dimethoxy-*p*-hydroquinone 1-***O***-β–D-glucopyranoside (**6**).
  * Four lignan glucosides: (-)-and (+)-lyoniresinol 3a-***O***-β–D-glucopyranosides (**7** and **8**); (+)-lyoniresinol 6-***O***-β–D-glucopyranoside (**9**), and ssiorisie (**10**).

VI-3-1. 白頭翁 Pulsatillae Radix

* *Pulsatilla chinensis* Regel. [Ranunculaceae]
Anemone pulsatilla L.

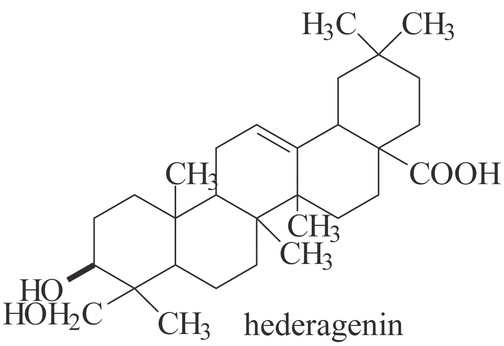


4-hydroxy-2-pentenoic acid　　　　　*p*-angelica-lactone

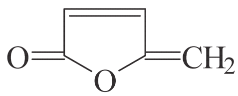


protoanemonin　　　　　anemonin

pulsatoside: hederagenin+arabinose, galactose, glucose, rhamnose
okinalein : $C_4H_6O_2$
olinalin : $C_{32}H_{64}O_2$



hederagenin



anemonol

Fig. 1. Chemical Structures of Compounds

VI-3-2-1. 白頭翁 Pullsatillae Radix

* Antitumor Activity in Triterpenoids Saponins Isolated from *Pullsatilla* Roots [*Pullsatilla koreana* Nakai (Ranunculaceae)]

** Seong-Cheol Bang, Hyun-Hee Seo, Hwi-Yeol Yun, and Sang-Hun Jung: *Chem. Pharm. Bull.* **55**(12), 1734-1739 (2007)

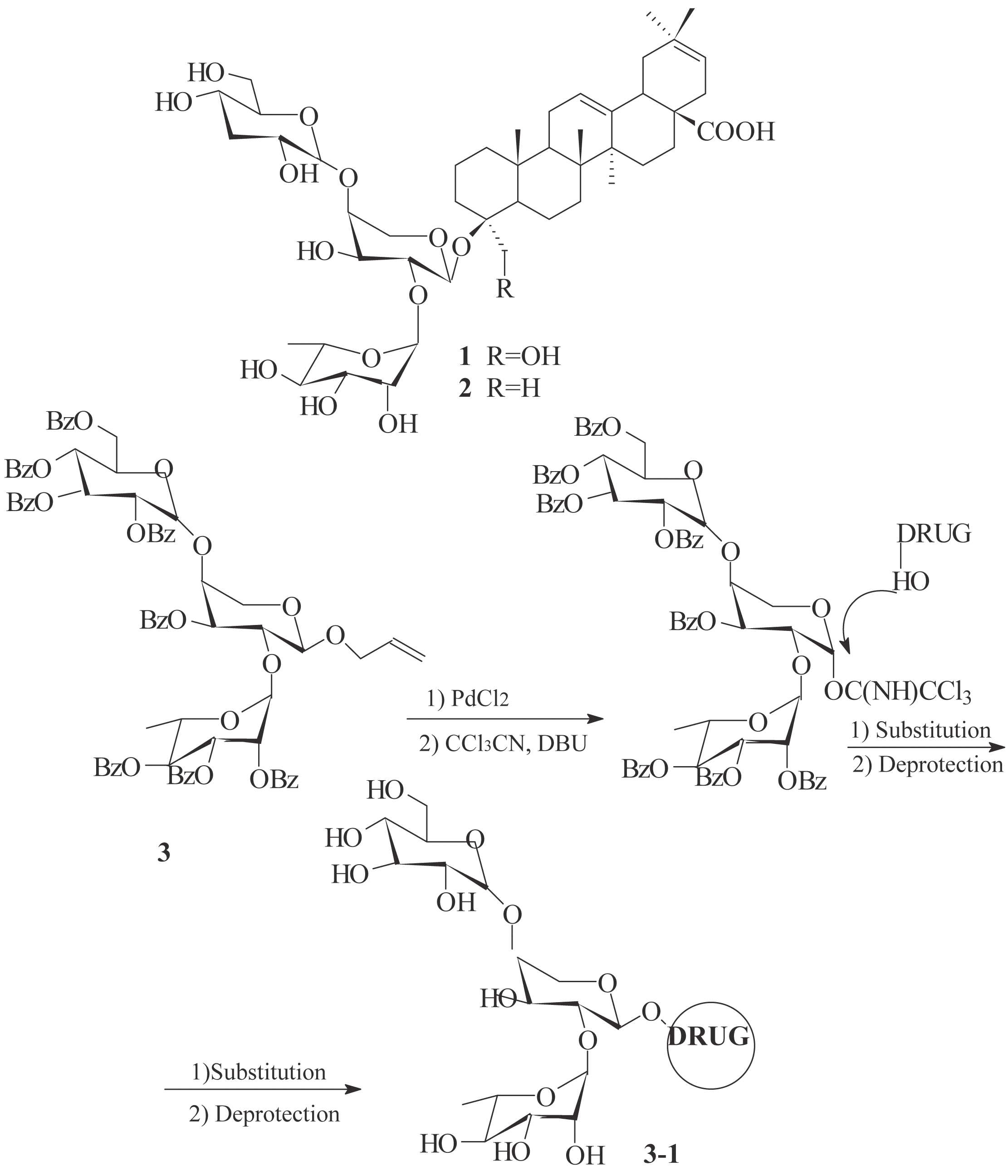


Fig. 1. Structures of *Pulsatilla* Saponin **1** and **2**, Target Trisaccharide Template **3**, and a Proposing Exanple (**3--1**) Conjugated with Drug

VI-3-2-2. 白頭翁 Pulsatillae Radix

*Continued VI-3-2-1

** Seong-Cheol Bang et al.:

Route 1: *Chem. Pharm. Bull.* **55**(12), 1734-1739 (2007)

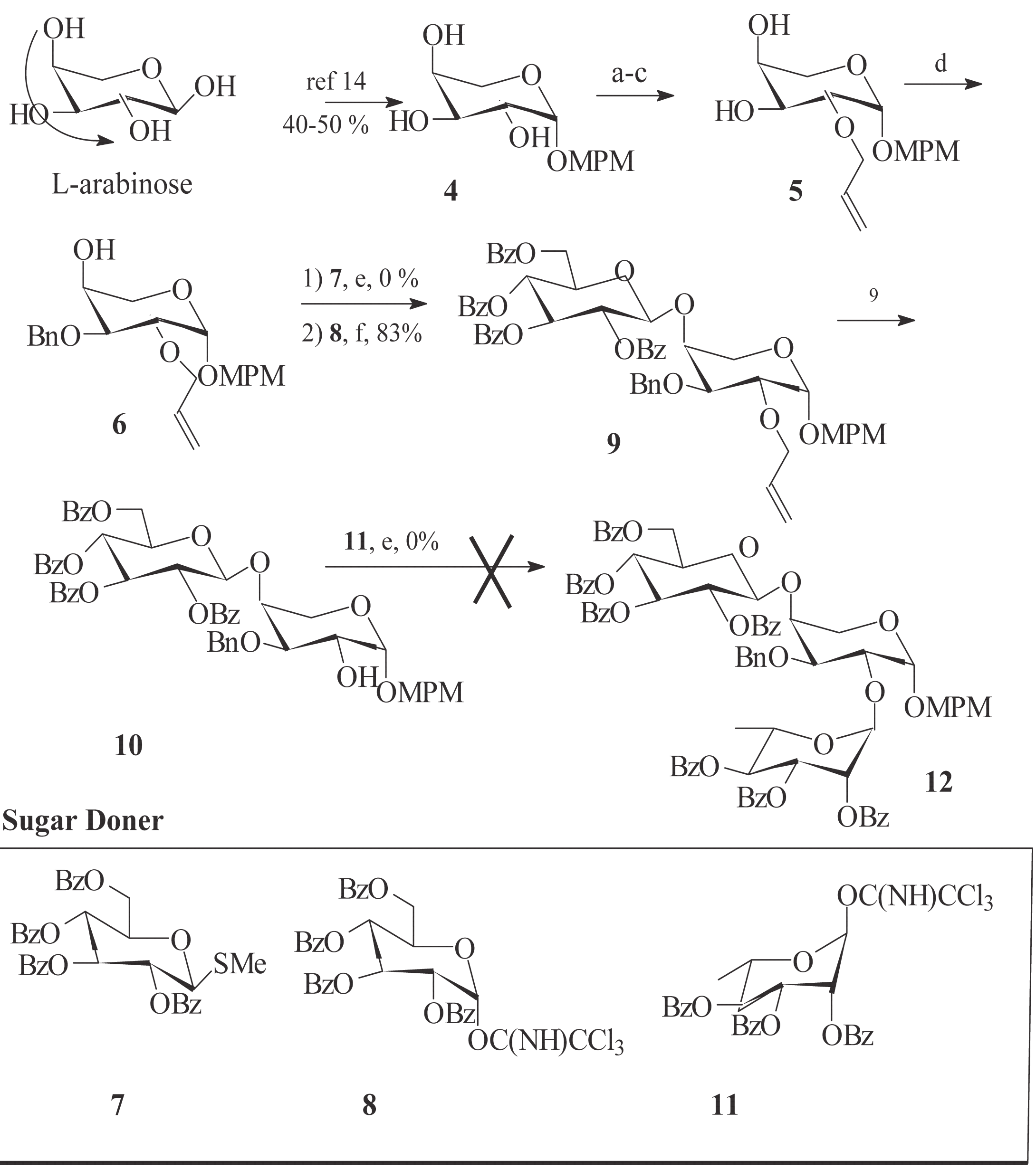


Chart 1. Attempted Synthesis towards Trisaccharide Template (Route 1)

* **4**. 4-methoxybenzyl α–L-arabinopyranoside;
  5. 4-methoxybenzyl-2-***O***-allyl-α–L-arabinopyranoside

VI-3-2-3. 白頭翁 Pulsatillae Radix

* Continued VI-3-2-2
** *Pulsatilla koreana* Nakai [Ranunculaceae]
*** Seong-Cheol Bang et al: *Chem. Pharm. Bull.,* **55**(12), 1734-1739 (2007)

Route 2:

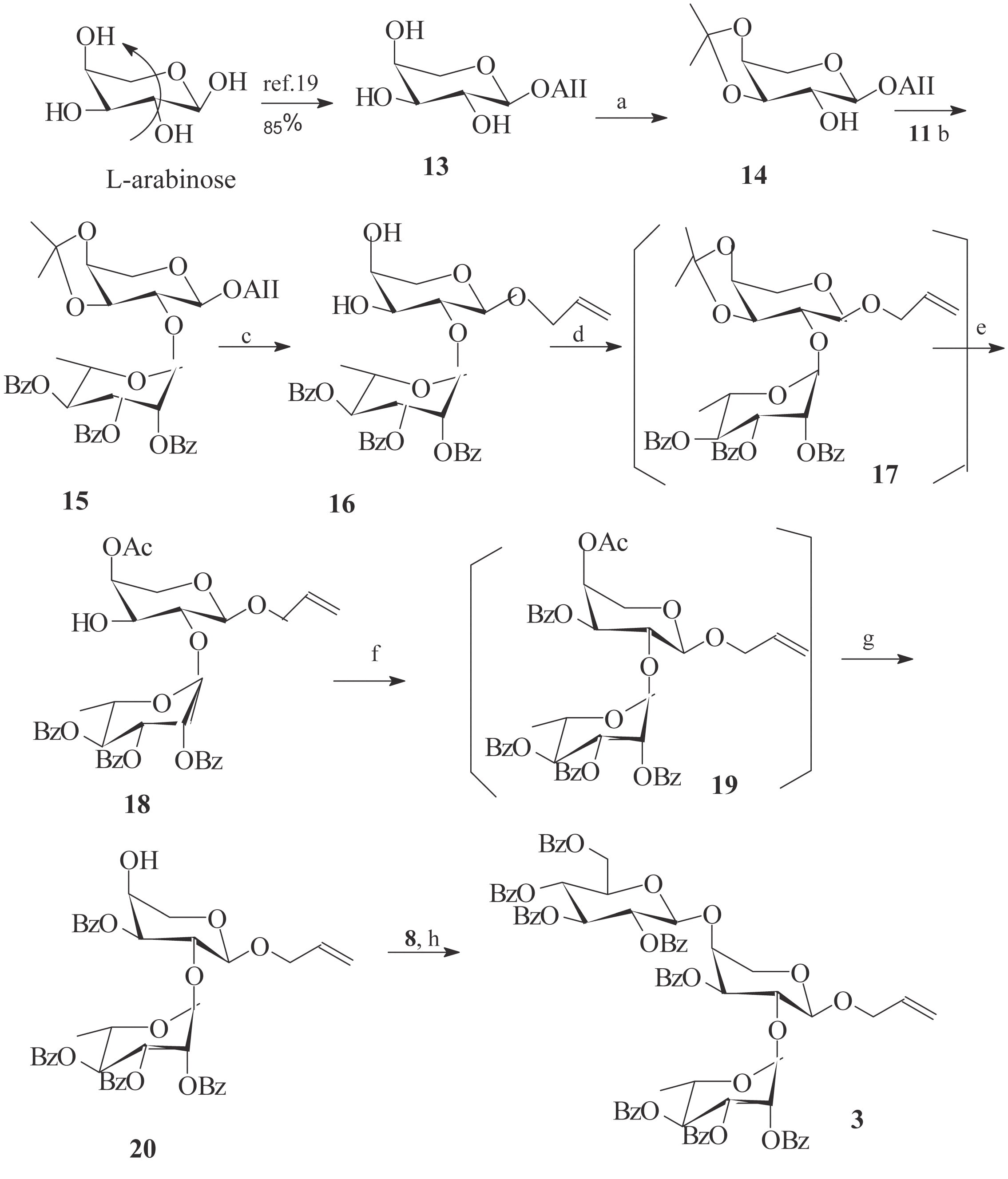


Chart 2. Completion of the Trisaccharide Template (**Route 2**)

VI-3-2-4. 白頭翁 Pulsatillae Radix

* Continued VI-3-2-3

** *Pulsatilla koreana* Nakai [Ranunculaceae]

*** Seong-Cheol Bang, Hyun-Hee Seo, Hwi-Yeol Yun, and Sang-Hun Jung: *Chem. Pharm. Bull.* **55**(12), 1734-1739 (2007)

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* **1**. pulsatilla saponin D

2. oleanolic acid 3-***O***-α–**L**-rhamnopyranosyl-(1-2)-[β-**D**-glucopyranosyl-(1-4)]-α–**L**-arabinopyranoside

3. allyl-2,3,4-tri-***O***-benzoyl-α–**L**-rhamnopyranosyl-(1-2)-[2,3,4,6-tetra-***O***-benzoyl-β–**D**-glucopyranosyl-(1-4)]-3-***O***-benzoyl-β–**L**-arabinopyranoside

4. 4-methoxybenzyl α–**L**-arabinopyranoside

5. 4-methoxybenzyl 2-***O***-allyl-α–**L**-arabinopyranoside

6. 4-methoxybenzyl 2-***O***-allyl-3-***O***-benzyl-α–**L**-arabinopyranoside

9. 4-methoxybenzyl 2,3,4,6-Tetra-***O***-benzoyl-β–**D**-glucopyranosyl-(1-4)-2-***O***-allyl-3-***O***-benzyl-α–**L**-arabinopyranoside

10. 4-methoxybenzyl 2,3,4,6-Tetra-***O***-benzoyl-β–D-glucopyranosyl-(1-4)-3-***O***-benzyl-α–L-arabinopyranoside

11. 2,3,4-tri-***O***-benzoyl-α–**L**-rhamnopyranosyl tirchloroacetimidate

13. allyl-β–**L**-arabinopyranoside

14. 3,4-isopropylidene derivative

15. allyl-2,3,4-tri-***O***-benzoyl-α–**L**-rhamnopyranosyl-(1-2)-3,4-***O***-isopropylidene-β–**L**-arabinopyranoside

16. allyl-2,3,4-tri-***O***-benzoyl-α–**L**-rhamnopyranosyl-(1-2)-β–**L**-arabinopyranoside

17. allyl-2,3,4-tri-***O***-benzoyl-α–**L**-rhamnopyranosyl-(1-2)-4-***O***-acetyl-β–**L**-arabinopyranoside

18. allyl-2,3,4-tri-***O***-benzoyl-α–**L**-rhamnopyranosyl-(1-2)-4-***O***-acetyl-β–**L**-arabinopyranoside

20. allyl-2,3,4-tri-***O***-benzoyl-α–**L**-rhamnopyranosyl-(1-2)-3-–***O***–benzoyl-β–**L**-arabinopyranoside

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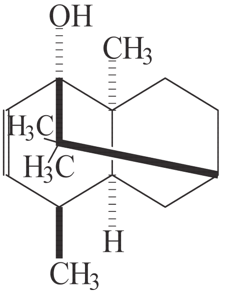
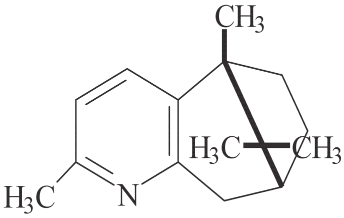
VI-4-1-1. 藿香 Pogostemoni Herba

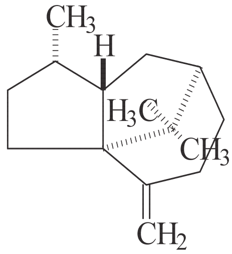
* *Pogostemon cablin* Benth. [Labiatae]



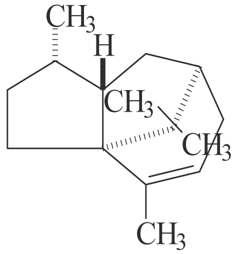
patchouli alcohol



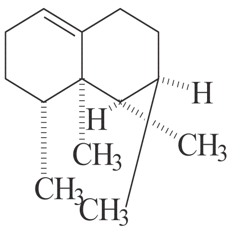
patchoulipyridine



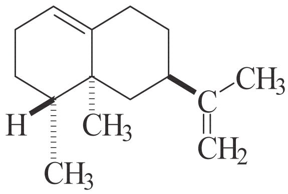
γ−patchoulene



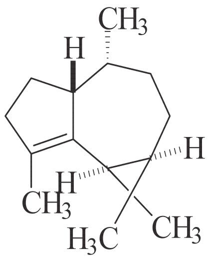
α−patchoulene



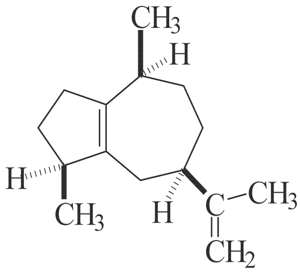
β−gurjunene



valencene



α−gurjunene



α−guaiene

Fig. 1. Chemical structures of compounds

VI-4-1-2. 藿香 Pogostemoni Herba

* *Pogostemon cablin* Bentham (Labiatae)

** Yoshiaki Amakura, Morio Yoshimura, Chika Mouri, Masayuki Mikage, Nobuo Kawahara, Yukihiro Goda, and Takashi Yoshida: *YAKUGAKU ZASSHI,* **128**(12) 1833-1837 (2008)

*** Components: falvones, chalcones, and alkaloids, and rich in volatile parchouli oil.

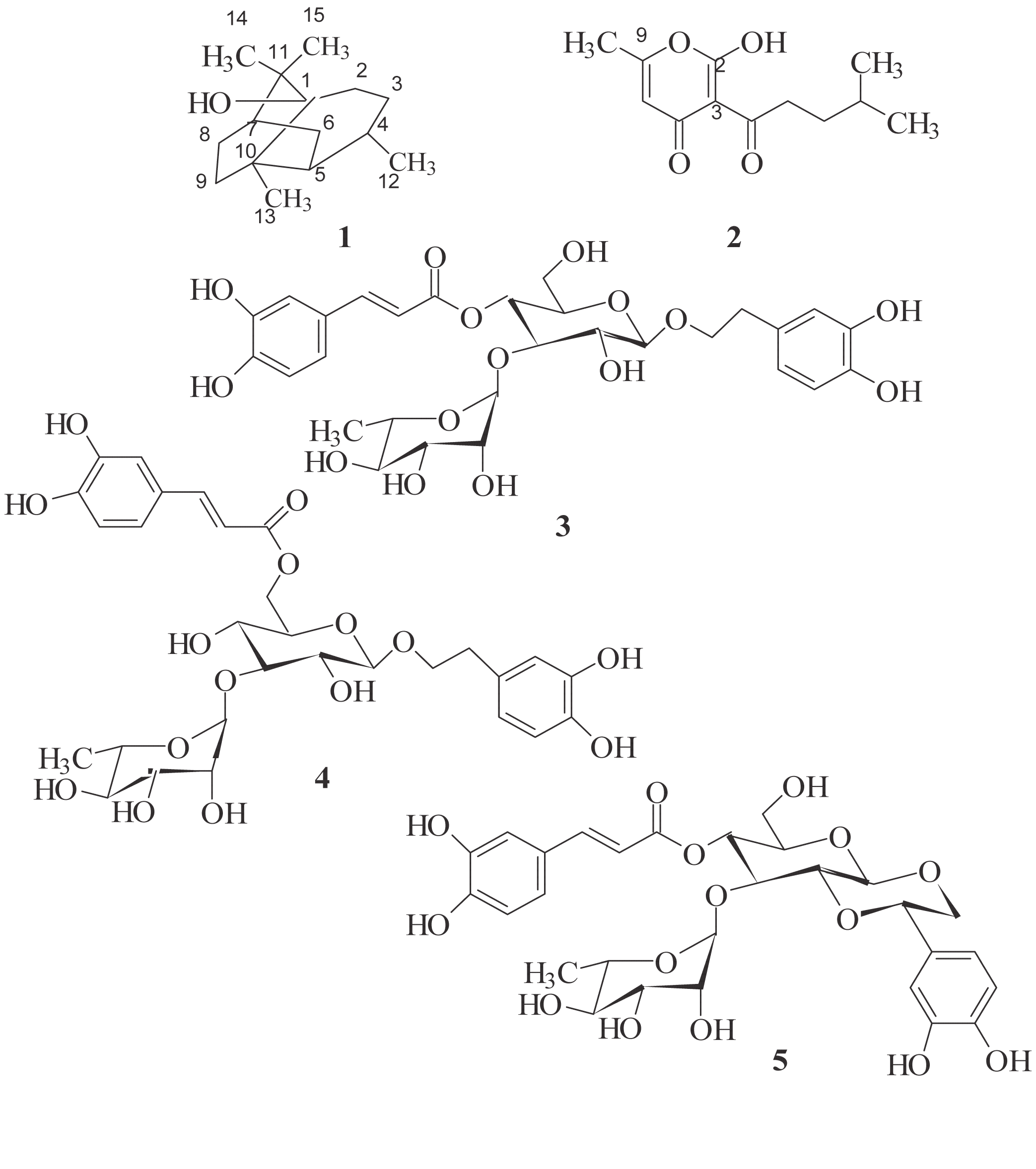


Fig. 1. Structures of Compounds **1**--**5** Isolated from Pogostemoni Herba

* (**1**). pachouli alcohol, (**2**) 2-hydroxy-6-methyl-3-(4-methylpentanoyl)-4-pyrone, (**3**). acteoside, (**4**). isoacteoside, (**5**). erenatoside.

VI-4-1-2. 藿香 Pogostemoni Herba

* *Pogostemon cablin* Bentham (Labiatae)

** Yoshiaki Amakura, Morio Yoshimura, Chika Mouri, Masayuki Mikage, Nobuo Kawahara, Yukihiro Goda, and Takashi Yoshida: *YAKUGAKU ZASSHI,* **128**(12) 1833-1837 (2008)

*** Components: falvones, chalcones, and alkaloids, and rich in volatile parchouli oil.

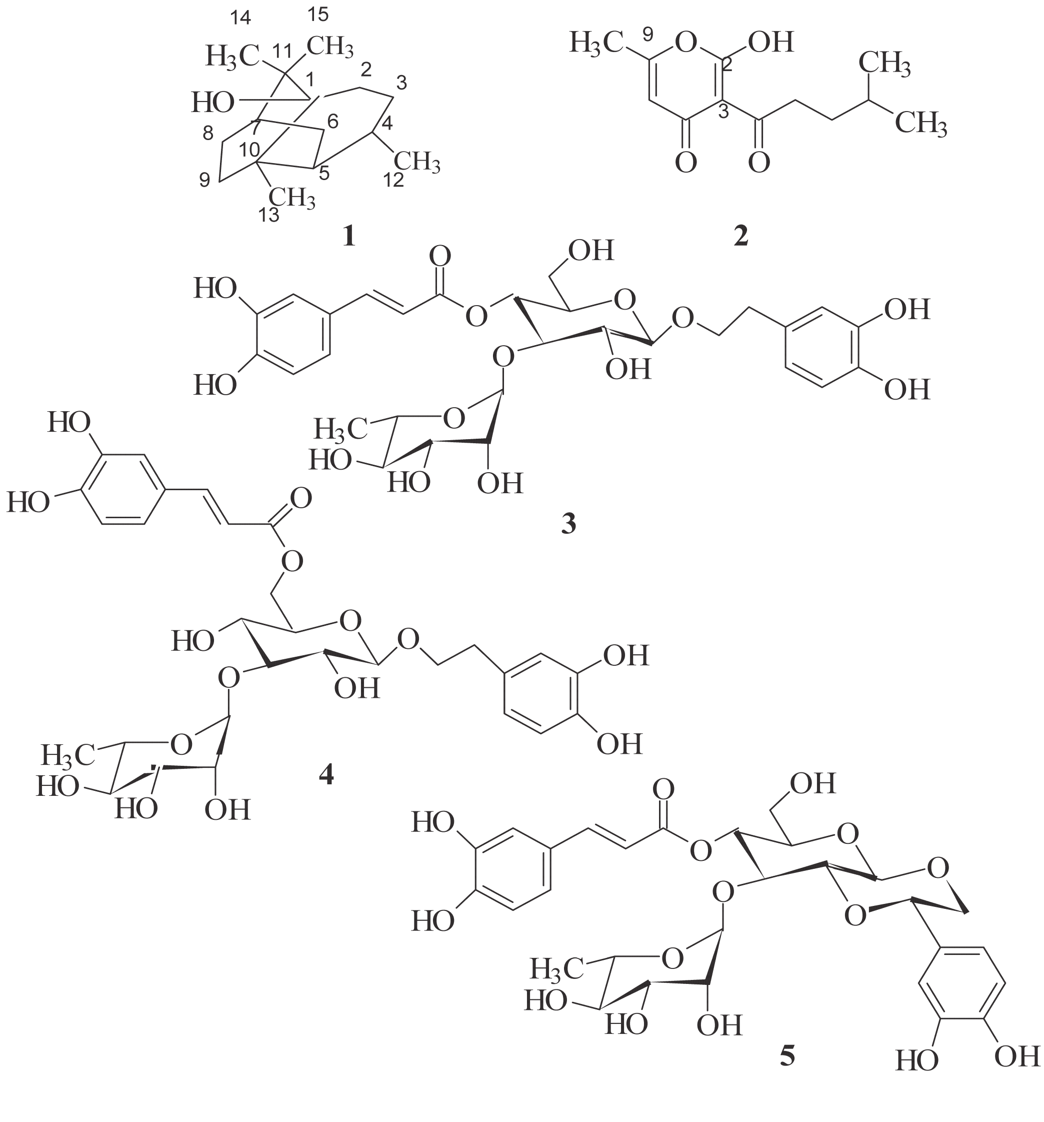


Fig. 1. Structures of Compounds **1**--**5** Isolated from Pogostemoni Herba

* (**1**). pachouli alcohol, (**2**) 2-hydroxy-6-methyl-3-(4-methylpentanoyl)-4-pyrone, (**3**). acteoside, (**4**). isoacteoside, (**5**). erenatoside.

VI-5. 山楂子 Crataegi Fructus

* *Crataegus cuneata* Sieb. et Zucc. ;
C. pinnatifida Bunge [Rosaceae]

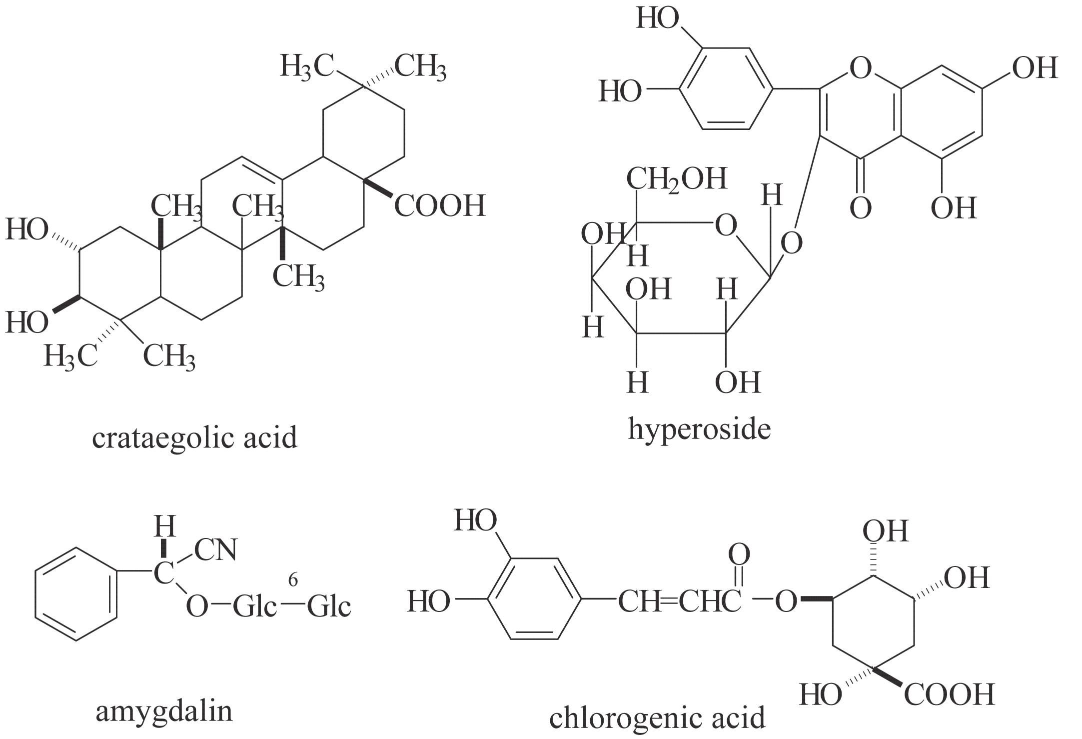
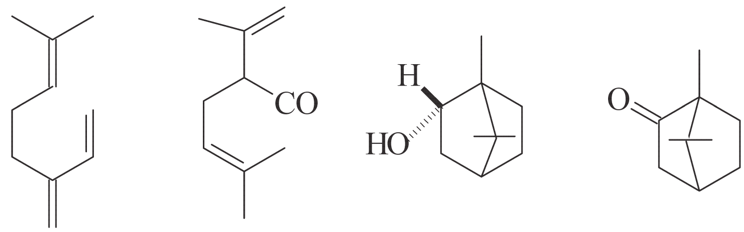


Fig. 1. Chemical structures of compounds

VI-7. 白豆蔻 Amomi Cardamomi Fructus

* *Amomum cardamomum* Linn'e [Zingiberaceae]



myrcene carvone (+)-borneol (+)-camphor

Fig. 1. Chemical structures of compounds

VI-8. 縮砂 Amomi Semen

* *Amomum xanthioides* Wallich;
A. villosum Loureio [Zingiberaceae]

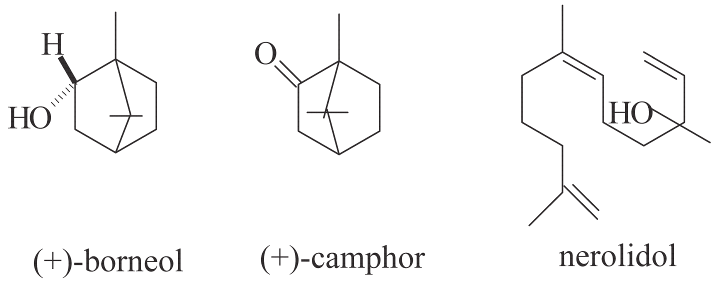


Fig. 1. Chemical structures of compounds

VII

・泌尿器系疾患

099 ～ 105

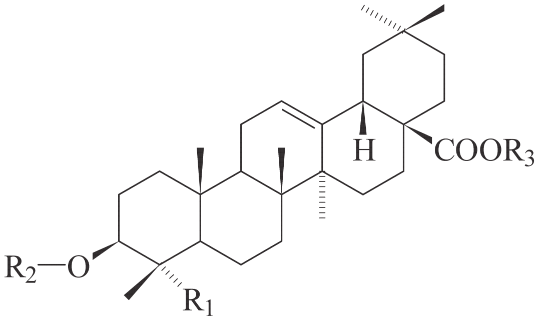
VII-1 ～ VII-2

△：成分未表示

099-1-1. 木通 Akebiae Quinatae Caulis

* *Akebia quinata* (Thunb.) Decaisne [Lardizabalaceae]

** Y. Kumekawa, H. Itokawa, M. Fujita:
Chem. Pharm. Bull. **22.** 2294 (1974)

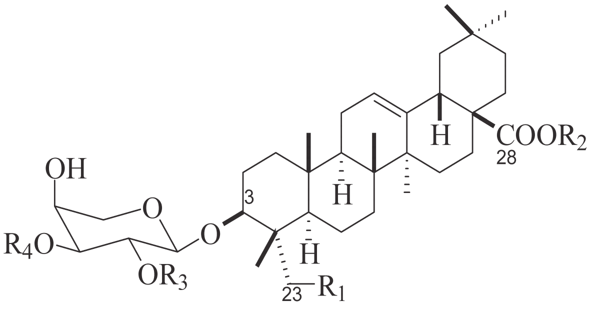


	R_1	R_2	R_3
akeboside St e	CH_3	$\mathrm{Rha}\overset{6}{-}\mathrm{Glc}\overset{2}{-}\mathrm{Ara}-$	H
akeboside St j	CH_3	$\mathrm{Rha}\underset{6}{--}\mathrm{Glc}\underset{2}{--}\ \mathrm{Ara}-$	$\mathrm{Rha}\overset{4}{--}\mathrm{Glc}\overset{6}{--}\mathrm{Glc}-$
akeboside St b	CH_2OH	Ara	H
akeboside St c	CH_2OH	$\mathrm{Rha}\overset{2}{--}\mathrm{Ara}-$	H

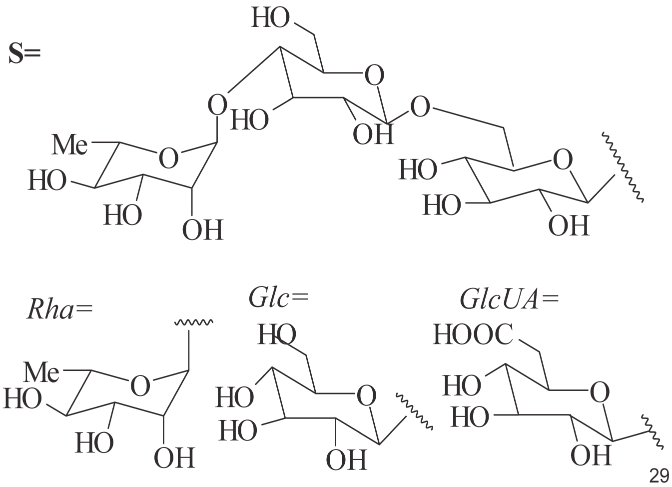
Fig. 1. Chemical structures of compounds akebosides

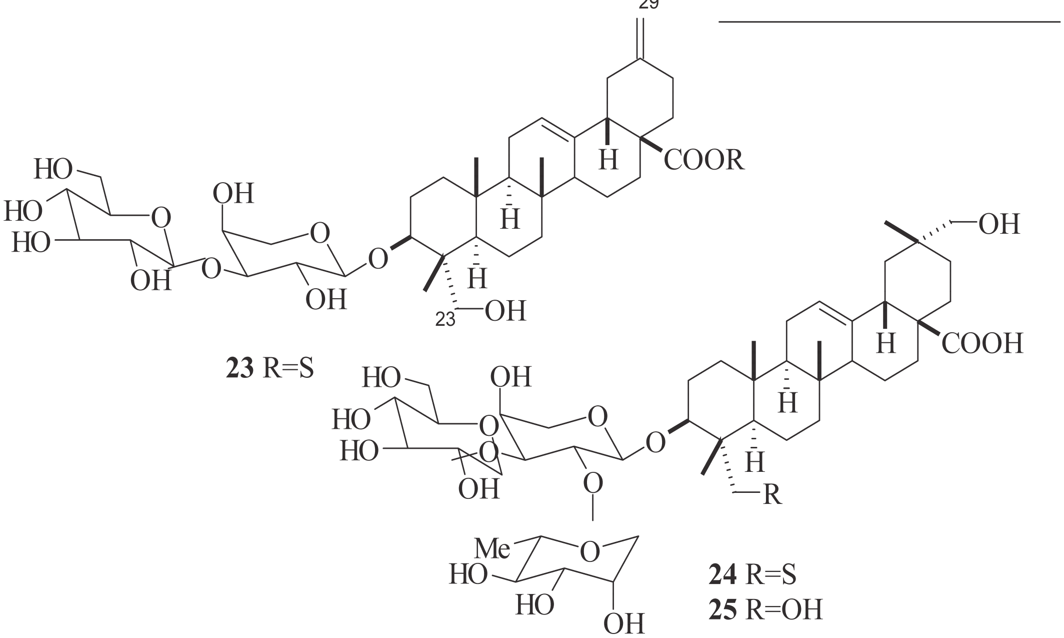
099-1-2. 木通 Triterpene Glycosides from Stems of *Akebia quinata* Decne

* Yoshihiro Mimaki, Saya Doi, Minpei Kuroda, and Akihito Yokosuka:
Chem. Pharm. Bull. **55**(9), 1319-1324 (2007)



	R_1	R_2	R_3	R_4
1	H	H	H	H
2	H	H	Rha	H
3	H	H	H	Glc
4	H	H	Glc	Glc
5	H	H	Rha	Glc
6	H	H	Rha	GlcUA
7	H	S	H	H
8	H	S	Rha	H
9	H	S	H	Glc
10	H	S	H	GlcUA
11	H	S	Glc	Glc
12	H	S	Rha	Glc
13	H	S	Rha	GlcUA
14	OH	H	H	H
15	OH	H	Rha	H
16	OH	H	H	Glc
17	OH	H	Rha	Glc
18	OH	S	Rha	H
19	OH	S	H	Glc
20	OH	S	H	GlcUA
21	OH	S	Rha	Glc
22	OH	S	Rha	GlcUA





23 R=S

24 R=S
25 R=OH

Fig. 1. Chemical structures of compounds **1**--**25**

099-1-3. 木通 Triterpene Glycosides fro Stems of *Akebia quinata* Decne
* (Continued 099-1-2)

1 3β–[(α–L-arabinopyranosyl)-oxy]olean-12-en-28-oci acid
2 3β–[(***O***-α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid
3 3β–[(***O***-β–D-glucopyranosyl-(1-3)-α–L-arabinopyranosyl)oxy]olean-12-en-28-o9c acid
4 3β–[(***O***-β–D-glucopyranosyl-(1-3)]-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid
5 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabinopyranosyl) oxy]olean-12-en-28-oic acid
6 3β–[(***O***-β-D-glucuronopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabino-pyranosyl)-(1-2)-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid
7 3β–[α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)- -***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester
8 3β–[(***O***-α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid -***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester
9 3β–[(***O***-β–D-glucopyranosyl-(1-3)-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid -***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester
10 3β–[(***O***-β–D-glucuronopyranosyl-(1-3)-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid -***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester
11 3β–[(***O***-β–D-glucopyranosyl-(1-2)-***O***-[β–D-glucopyranosyl-(1-3)]-α–L-arabinopyranosyl) oxy]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl ester
12 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl) oxy]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester
13 3β–[(***O***-β–D-glucuronopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabino-pyranosyl)oxy]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-gluco-pyranosyl-(1-6)-β–D-glucopyranosyl ester
14 3β–[(α–L-arabinopyranosyl)oxy]-23-hydroxy-olean-12-en-28-oic acid
15 23-hydroxy-3β–[(***O***-α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl)oxy]olean-12en-28-oic acid
16 3β–[(***O***-β–D-glucopyranosyl-(1-3)α–L-arabinopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid
17 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabino-pyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid
18 23-hydroxy-3β–[(***O***-α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl)oxy]olean 12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

099-1-4. 木通 Triterpene Glycosides from the Stems of *Akebia quinata* Decne

* (Continued 099-1-3)

** Yoshihiro Mimaki et al: *Chem. Pharm. Bull.* **55**(9), 1319-1324 (2007)

19 3β–[(***O***-β–D-glucopyranosyl-(1-3)-α–L-arabinopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

20 3β–[(***O***-β–D-glucuronopyranosyl-(1-3)-α–L-arabinopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

21 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabinopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

22 3β–[(***O***-β–D-glucuronopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabinopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

23 3β–[(***O***-β–D-glucopyranosyl-(1-3)-α–L-arabinopyranosyl)oxy]-23-hydroxy-30-noroleana-12,20(29)-dien-28-oic acid -***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

24 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-[α-L-rhamnopyranosyl-(1-2)]-α–L-arabinopyranosyl)oxy]-29-hydroxyolean-12-en-28-oic acid

25 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabinopyranosyl)oxy]-23,29-dihydroxyolean-12-en-28-oic acid

099-1-5. 木通 Three New Lignan Glycosides from *Akebia quinata*

* Hong-Guang Jin, Eun-Rhan Woo et al: *Chem. Pharm. Bull.* **62**(3) 288-293 (2014)

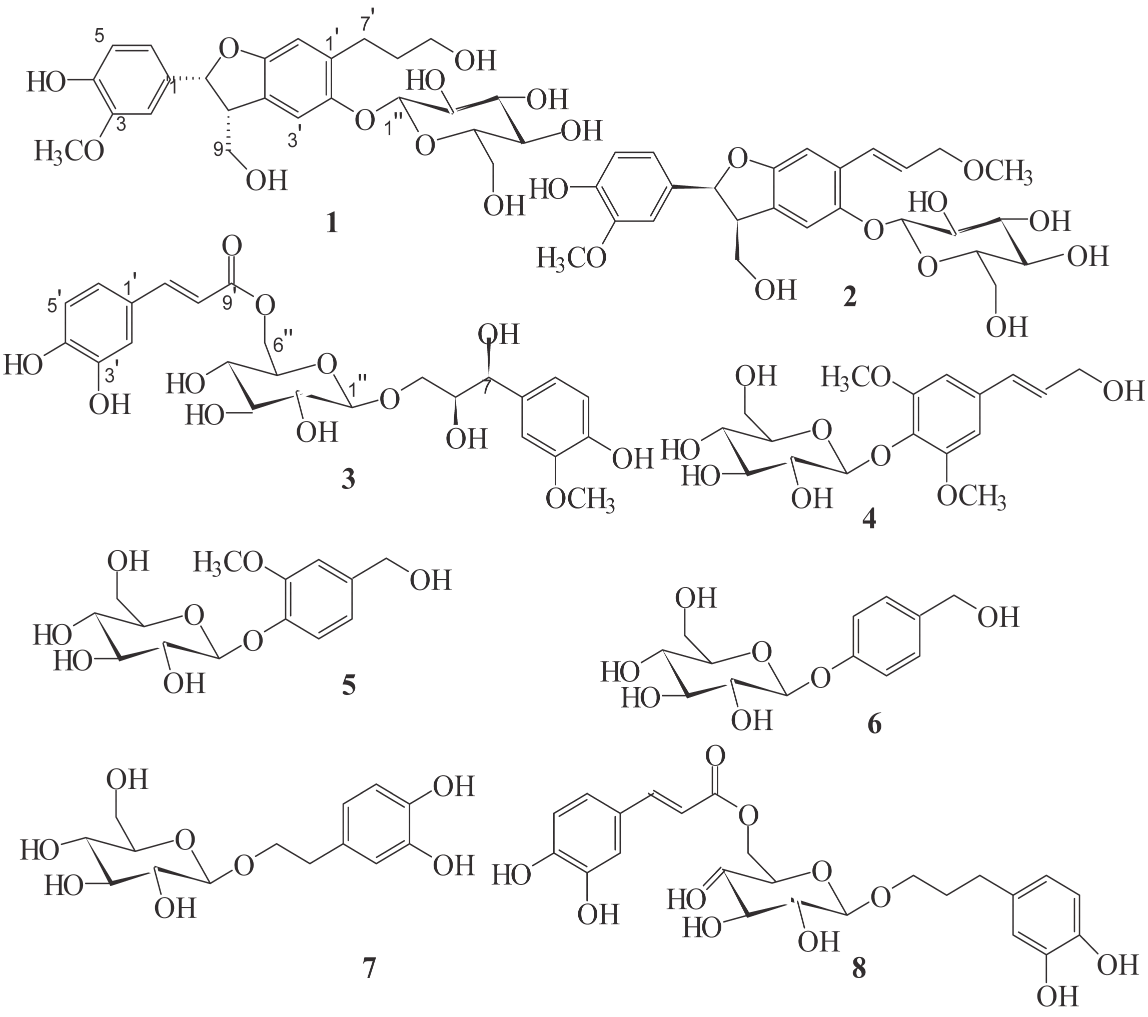


Fig. 1. The Structures of compounds **1-8** from *Akebia quinata*

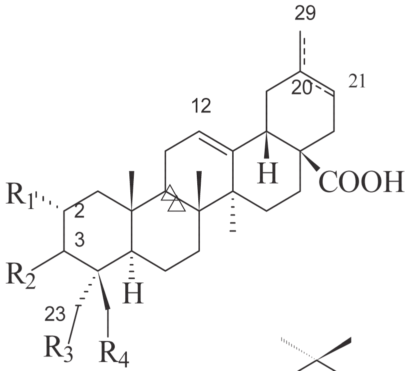
* Three new Lignan glycosides:
akequintoside A [(7*S*,8*S*)-7,8-dihydro-8-hydroxymethyl-7-(4-hydroxy 3-methoxyphenyl)-1'-benzofuranpropanol 2'-*O*-β–D-glucopyranoside (**1**).
akequintoside B[(7*R*,8*R*)-7,8-dihydro-8-hydroxymethyl-7-(4-hydroxy-3-methoxyphenyl)-1'-(9'-methoxy-7'-propenyl) benzofuran 2'-*O*-β–D-glucopyranoside](**2**), and
akequintoside C [7*R**,8*R**-dihydroxy-7-(4-hydroxy-3-methoxyphenyl)-glycerol 9-*O*-β–D-(6'-*O*-cafefeoyl-glucopyranoside (**3**) were isolated from *Akebia quinata* along with five known compounds, syringing (**4**), vanilloloside (**5**), salidroside (**6**), 3,4-dihydroxypheny-ethyl alcohol 8-*O*-β–D-glucopyranoside (**7**), and calceolarioside B (**8**).

099-2-1. 木通 Akebiae Trifoliatae Caulis

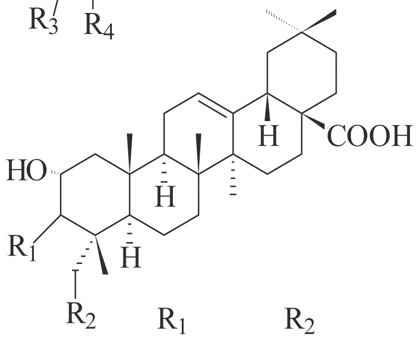
* *Akebia trifoliata* (Thunb.) Koidz. [Lardizabalaceae]

** Y. Mimaki, M. Kuroda, A. Yokosuka, H. Harada, M. Fukushima, and Y. Sashida, *Chem. Pharm. Bull.* **51**(8), 960-965 (2003)

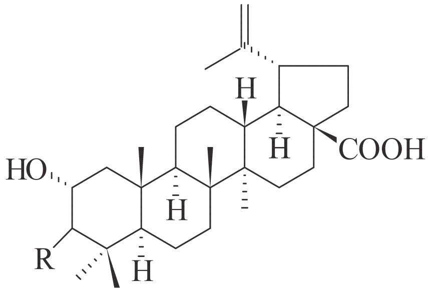
*** Triterpene and triterpene saponin



	R1	R2	R3	R4
1:	OH	β–OH	H	H
2:	OH	α–OH	H	H
3:	OH	β–OH	OH	H
4:	H	α–OH	H	OH
5:	OH	β–OH	OH	H



	R1	R2
6:	β–OH	H
7:	α–OH	H
8:	β–OH	OH



9 : R=β–OH
10: R=α–OH

Fig. 1-1. Chemical structures of compounds **1--10**

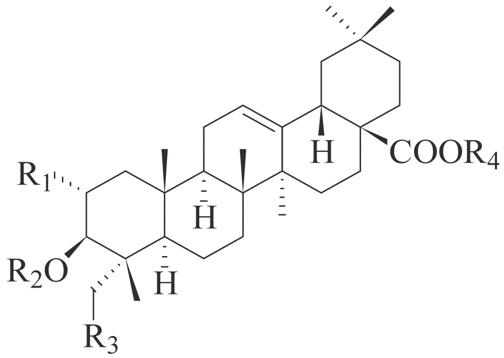
* **1**: 2α, 3β–dihydroxy-30-noroleana-12, 20(29)-dien-oic acid
2: 2α, 3α–dihydroxy-30-noroleana-12, 20(29)-dien-oic acid
3: 30-noroleanane derivative
4: 3α, 24–dihydroxy-30-noroleana-12, 20(29)-dien-28-oic acid
5: 2α, 3β, 23–trihydroxy-30-noroleana-12, 20(29)-dien-28-oic acid
6: 2α, 3β–dihydroxyolean-12-en-28-oic acid
7: 2α, 3α–dihydroxyolean-12-en-28-oic acid
8: 2α, 3β, 23–trihydroxyolean-12-en-28-oic acid
9: 2α, 3β–dihydroxylup-20(29)-en-28-oic acid
10: 2α, 3α–dihydroxylup-20(29)-en-28-oic acid

099.2-2. 木通 Akebiae Trifoliatae Caulis

* *Akevia trifoliata* (Thunb.) Koidz. [Lardizabalaceae]

** Y. Sashida et al : *Chem. Pharm. Bull.* **51**(8), 960-965 (2003)

*** Continued 099-2-1



	R_1	R_2	R_3	R_4
11:	OH	+Na-O3S-	OH	Rha(1-4)-Glc-(1-6)-Glc-
12:	OH	+Na-O3S-	OH	Glc-(1-6)-Glc-
13:	H	GlcUA-(1-3)-[Rha-(1-2)]-Ara-	H	H
14:	H	Glc-(1-3)-[Rha-(1-2)]-Ara	H	H
15:	H	Glc-(1-2)-[Glc-(1-3)]-Ara-	H	H
16:	H	H	H	Rha-(1-4)-Glc-(1-6)-Glc-
17:	H	Rha-(1-2)-Ara-	H	Rha-(1-4)-Glc-(1-6)-Glc-
18:	H	Glc-(1-3)-[Rha-(1-2)]-Ara-	H	Rha-(1-4)-Glc-(1-6)-Glc-
19:	H	Glc-(1-3)-[Xyl-(1-2)]-Ara	H	Rha-(1-4)-Glc-(1-6)-Glc-
20:	H	Rha-(1-2)-Ara-	OH	Rha-(1-4)-Glc-(1-6)-Glc-
21:	H	Glc-(1-3)-Ara-	OH	Rha-(1-4)-Glc-(1-6)-Glc-
22:	OH	H	OH	Rha-(1-4)-Glc-(1-6)-Glc-
23:	OH	H	OH	Xyl-(1-3)-Rha-(1-4)-Glc-(1-6)-Glc-

Fig. 1-.2. Chemical structures of compounds **11**--**23**

*

11: 2α, 23-dihydroxy-3β–sulfoxyolean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D- glucopyranosyl(1-6)-β–D-glucopyranosyl ester sodium salt

12: 2α, 23-dihydroxy-3β–sulfoxyolean-12-en-28-oic acid ***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester sodium salt

13: 3β–[(***O***-β–D-glucuronopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid

14: 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabinopyranosyl)-oxy]olean-12-en-28-oic acid

15: 3β–[(***O***-β–D-glucopyranosyl-(1-2)-***O***-[β–D-glucopyranosyl-(1-3)]-α–L-arabinopyranoxyl)oxy]olean-12-en-28-oic acid

16: 3β–hydroxyolean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β-D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

099-2-3. 木通 Akebiae Trifoliatae Caulis

* *Akebia trifoliata* (Thunb.) Koidz. [Lardizabalaceae]
Y. Sashida et al.: *Chem. Pharm. Bull.* **51**(8), 960-965 (2003)

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* 17: 3β–[(***O***-α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

18: 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-[α–L-rhamnopyranosyl-(1-2)]-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

19: 3β–[(***O***-β–D-glucopyranosyl-(1-3)-***O***-β–D-xylopyranosyl-(1-2)]-α–L-arabinopyranosyl)oxy]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

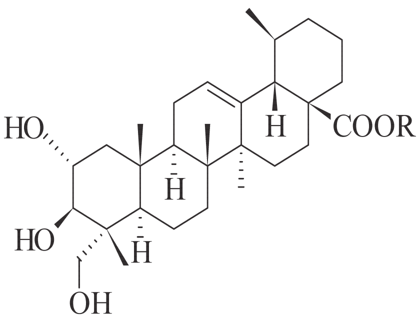
20: 23-hydroxy-3β–[(***O***-α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl-)oxy]olean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

21: 3β–[(***O***-β–D-glucopyranosyl-(1-3)-α–L-arabinopyranosyl)oxy]-23-hydroxyolean--12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

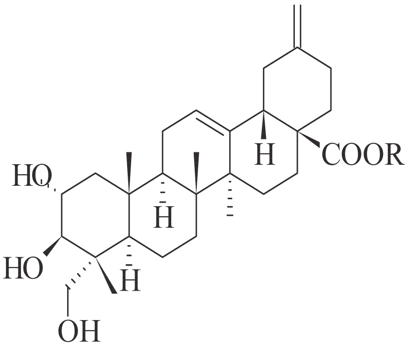
22: 2α, 3β, 23-trihydroxyolean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

23: 2α, 3β, 23–trihydroxyolean-12-en-28-oic acid ***O***-β–D-xylopyranosyl-(1-3)-***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

⋮



24: R=Rha-(1-4)-Glc-(1-6)-Glc-



25: R=Rha-(1-4)-Glc-(1-6)-Glc-

* 24: 2α, 3β, 23–trihydroxyurs-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-*β*–D-glucopyranosyl ester

25: 2α, 3β, 23-trihydroxy-30-norolean-12-en-28-oic acid ***O***-α–L-rhamnopyranosyl-(1-4)-***O***-β–D-glucopyranosyl-(1-6)-β–D-glucopyranosyl ester

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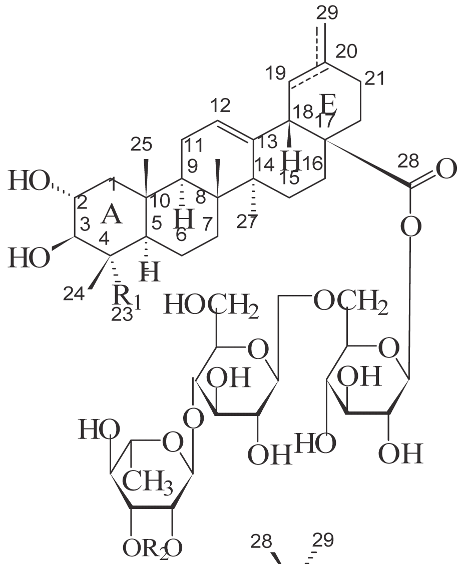
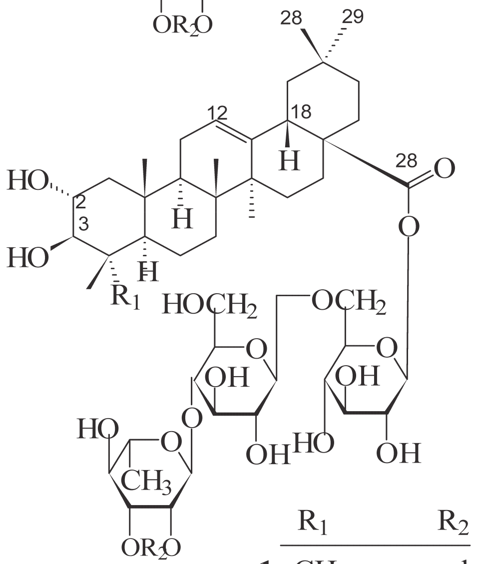
099-2-4. 木通 Triterpene Saponins from the Pericarps of *Akebia trifoliata* (Thunb.) Koidz. [Lardizabalaceae]

* Syuji Iwanaga, Tsutomu Warashinea, and Toshio Miyase:

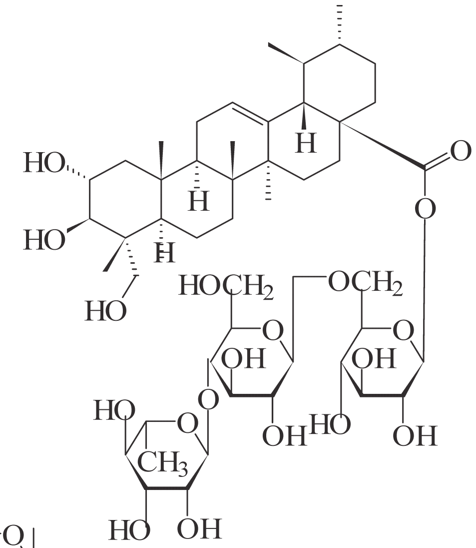
Chem. Pharm. Bull. **60**(10) 1264-1274 (2012)



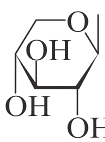
	R_1	R_2	E ring
2:	CH_3	xyl	20(21)-en
3:	CH_3	H	20(21)-en
4:	CH_2OH	xyl	20(21)-en
5:	CH_2OH	H	20(21)-en
6:	CHO	xyl	20(21)-en
7:	CHO	H	20(21)-en
8:	CH_3	xyl	19-en
9:	CH_3	xyl	20(29)-en
10:	CH_3	H	20(29)-en
11:	CHO	H	20(29)-en
14:	CH_2OH	H	20(29)-en



	R_1	R_2
1:	CH_3	xyl
12:	CH_2-OH	H
15:	CH_2OH	xyl



13



xyl

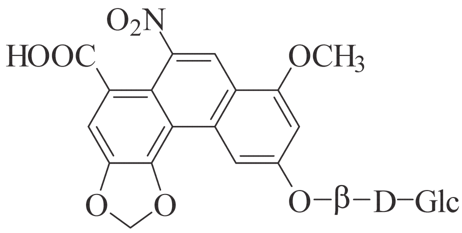
Chart 1. Structure of Compounds **1--15** Isolated from the Percarps of *Akebia trifoliata* (Thunb.) Koidz. [Lardizabalaceae]

* Eleven new Triterpene saponin compounds (**i-11**) were isolated from the MeOH exteact of pericap of *Akebia trifoliata* (Thunb.) Koidz.
* Akemisaponin A (**1**), akemi saponin B (**2**), akemisaponin (**3**), akemisaponin D(**4**), akemi -saponin E (**5**) and G (**7**), akemisaponin H (**8**), akemisaponin I (**9**)and J (**10**) , K (**11**).

099-3. 木通 Aristolochiae Caulis

* *Aristolochia manshuriensis* Nakai [Aristolochiaceae]

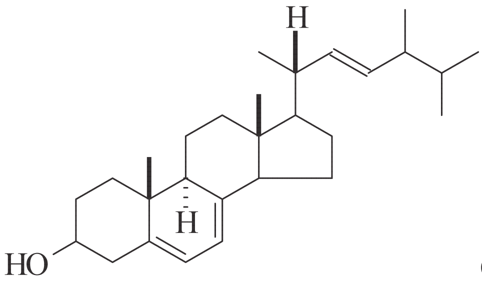
** Nakanishi T., Iwasaki K., Nasu M., Miura I., Yoneda K., *Phytochemistry,* **21**, 1759-1762 (1982)



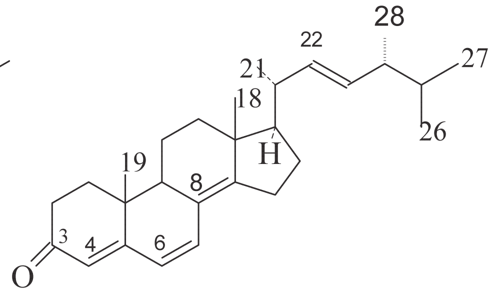
aristoloside

100-1. 豬苓 Polyporus

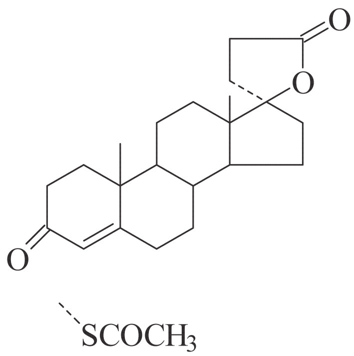
* *Polyporus umbellatus* Fries [Polyporaceae]
Fagus crenata Blume



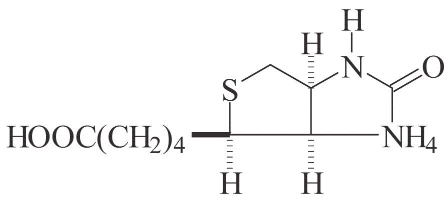
ergosterol



ergosta-4,6,8 (14), 22-tetraen-3-one
[=ergone] (marker compound)



spironolactone



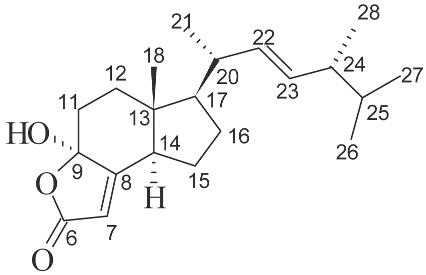
biotin

Fig. 1. Chemical structures of compounds

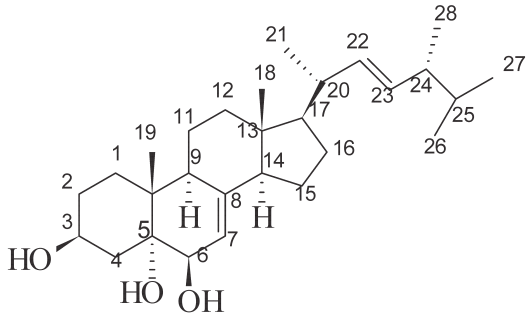
100-2. 豬苓 Polyporus

* *Polyporus umbellatus* Fries [Polyporaceae]

** K. Ohta, Y. Yaoita, N. Matsuda, M. Kikuchi : *Natural Medicines,* **50**(2), 179-181 (1996)



9α–hydroxy-1, 2, 3, 4, 5, 10, 19-hepta norergosta-7, 22-diene-6, 9-lactone



ergosta-7, 22-diene-3β, 5α, 6β–triol

Fig. 1. Chemical structures of compounds

100-3. 豬苓 Polyporus

* Two New Polyporusterones Isolated from the Sclerotia of *Polyporus umbellatus* Fries [Polyporaceae]

** Wei-Wei Zhou, Wen-Han Lin, and Shun-Xing Guo:
Chem. Pharm. Bull. **55**(8), 1148-1150 (2007)

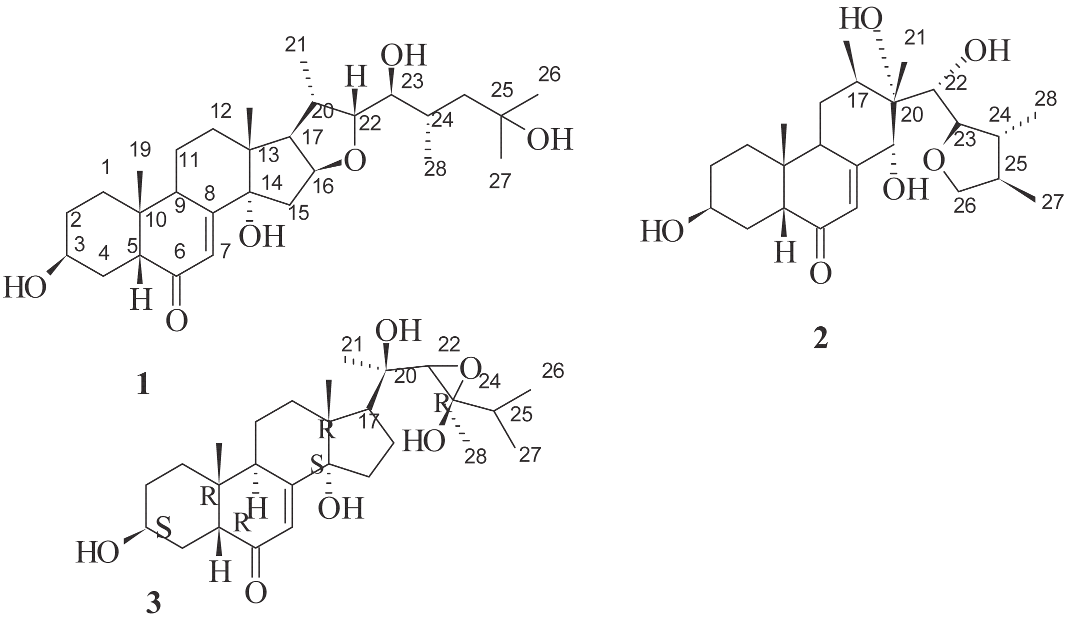


Fig. 1. Structures of Compounds **1**. **2** and **3** from *Polyporus umbellatus*

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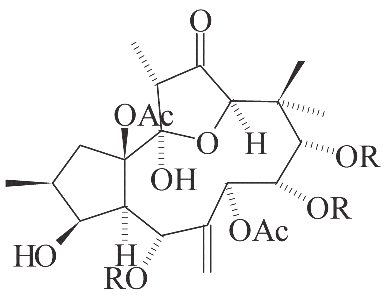
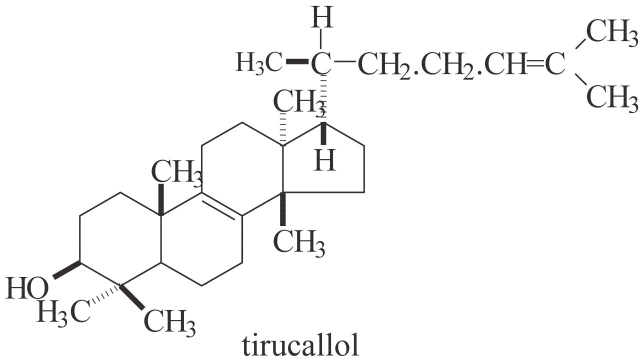
* **1**. (20*S*, 2*R*, 24*R*)-16, 22-epoxy-3β,14α, 23β, 25−tetrhydroxyergost-7-en-6-one
2. (23*R*, 24*R*, 25*R*)-23, 6-epoxy-3β,14α, 21α, 22α−tetrahydroxyergost-7-en-6-one
3. 22, 23-epoxy-3β,14α, 20β, 24β−tetrahydroxy-7-en-6-one
4. polyporusterone A

101-1. 甘遂 Euphorbiae Kansui Radix

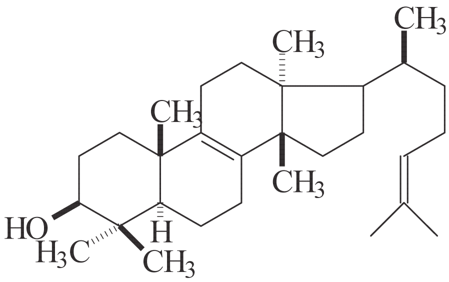
* *Euphorbia kansui* Liou [Euphorbiaceae]



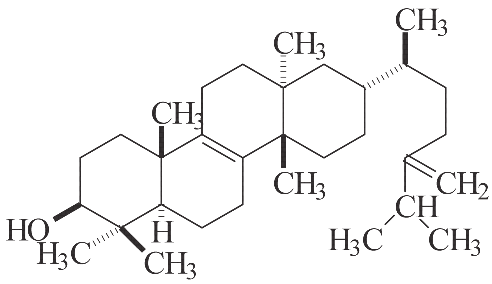
kansuinin A: R=benzoyl(1) , acetyl(x3)



tirucallol
(=kanzuiol)



α−euphol
(=γ−euphorbol)



α−euphorbol
(=euphorbadienol)

Fig. 1. Chemical structures of compounds

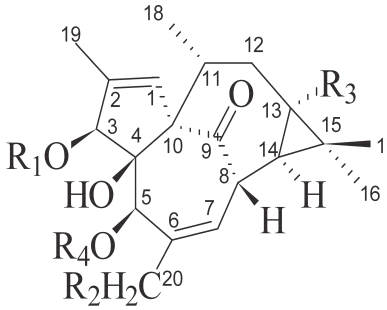
101-2. 甘遂 Euphorbiae Kansui Radix

* *Euphorbia kansui* Liou [Euphorbiaceae]

** L-Y. Wang, N-L. Wang, X-S. Yao, S. Miyata, and S. Kitanaka, *Chem. Pharm. Bull.* **51**(8), 935-941 (2003)

*** Ingenane-type and Jatrophane-type Diterpene

1) *Ingenane Type:*



Kansuiphorin A R_1=COCH(Me)CH(Me)$_2$, R_2=OCO(CH$_2$)$_{14}$Me, R_3=OCO(GH$_2$)$_{10}$Me, R_4=H

1 R_1=COCH(Me)CH(Me)$_2$, R_2=OAc, R_3=OCO(CH$_2$)$_{10}$Me, R_4=H

2 R_1=COCH(Me)CH(Me)$_2$, R_2=H, R_3=OCO(CH$_2$)$_{10}$Me, R_4=H

3 R_1=CO--(CH$\overset{E/Z}{=}$CH)$_2$ -- (CH$_2$)$_4$ -- CH$_3$, R_2=H, R_3=H, R_4=H

4 R_1=CO--(CH$\overset{E/E}{=}$CH$_2$) -- (CH$_2$)$_4$--CH$_3$, R_2=H, R_3=H, R_4=H

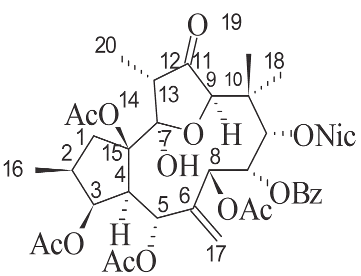
5 R_1=H, R_3=OCOCH((ME)CH(Me)$_2$, R_3=OCO(CH$_2$)$_{10}$Me, R_4=H

6 R_1=COCH(Me)CH(Me)$_2$, R_2=OH, R_3=OCO(CH$_2$)$_{10}$Me, R_4=H

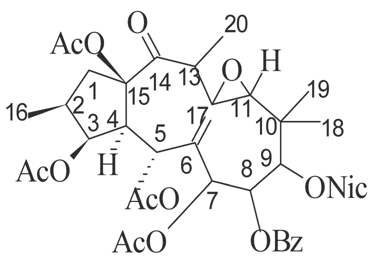
7 R_1=benzoyl, R_2=OH, R_3=OCO(CH$_2$)$_{10}$Me, R_4=H

8 R_1=H, R_2=benzoyloxy, R_3 =OCO(CH$_2$)$_{10}$Me, R_4=H

2) *Jatrophane Type:*



9 kansuinin D



10 kansuinin E

Fig. 1. Chemical structures of compounds **1--10**

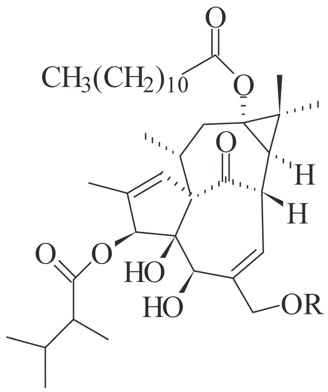
101-3. 甘遂類 *Euphorbia* Species

* Kuo-Hsiung Lee et al: *J Nat Med,* **62**(3), 263-280 (2008)

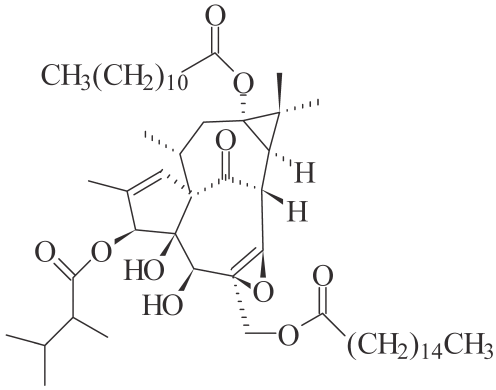
** 1) *Euphorbia kansui*: Kansuiphorins A-D and DBDI

2) *E. ebracteolata*: Yuexiandajisus D-F

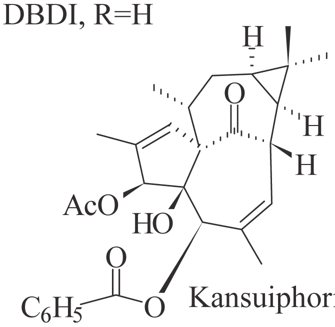
3) *E. lagascae*: Latilagascens A-C



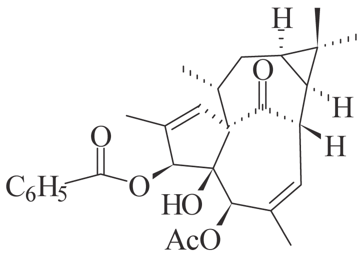
Kansuiphorin A, $R=CO(CH_2)_{14}CH_3$
DBDI, R=H



Kansuiphorin B

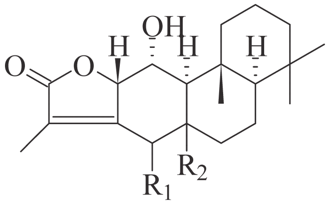


Kansuiphorin C

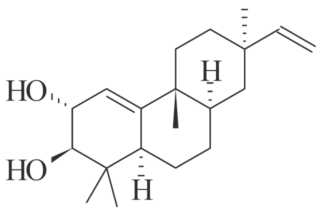


Kansuiphorin D

* from *Euphorbia kansui*

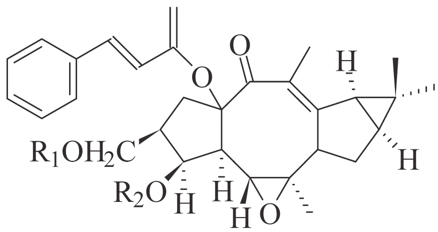


Yuexiandajisu D,
R_1=β–OH, R_2=α–OH
Yuexiandajisu E,
R_1=α–OH, R_2=β–OH



Yuexiandajisu F

* from *Euphorbia ebracteolata*



Latilagascen A, R_1=Ac, R_2=H
Latilagascen B, R_1=R_2=H
Latilagascen C, R_1=R_2=Ac

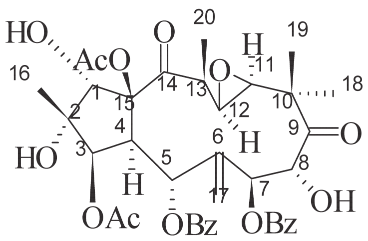
* from *Euphorbia lagascae*

Fig. 1. Compounds from *Euphorbia* species

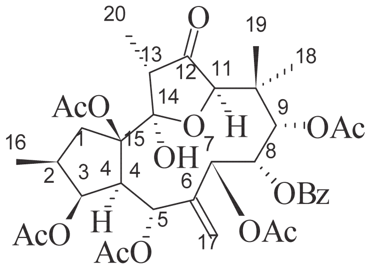
101-4. 甘遂 Euphorbiae Kansui Radix

* *Euphorbia kansui* Liou [Euphorbiaceae]

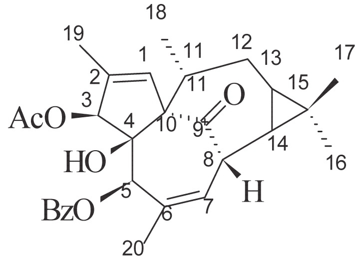
** Xiaoyun Shu, Li Yu, Yuping Tang, Li Zhang, Anwei Ding, Dan Luo, Jin-ao Duan, Xiangechun Shen: *J Nat Med* **64**(1) 98-103 (2010)



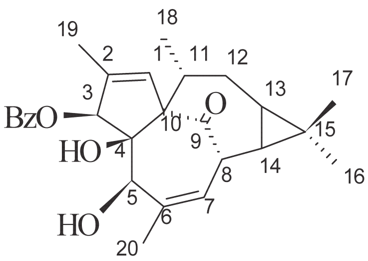
1 kansuinine B



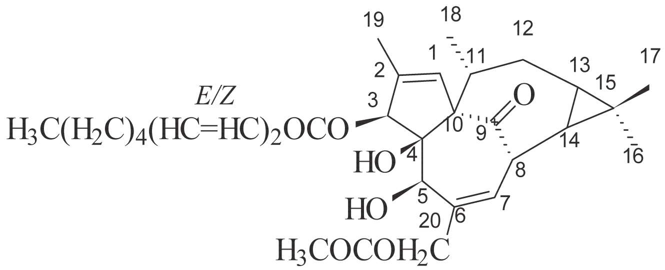
2 kansuinine A



3 kansuiphorin C



3–*O*–benzoyl-20-deoxyingenol



5 3-*O*-(2'*E*,4'*Z*-decadienoyl)-20-*O*-acetylingenol

Fig. 1. The Chemical Structures of Compounds **1**--**5**

102-1. 山茱萸 Corni Fructus

* *Cornus officinalis* Sieb. et Zucc. [Cornaceae]

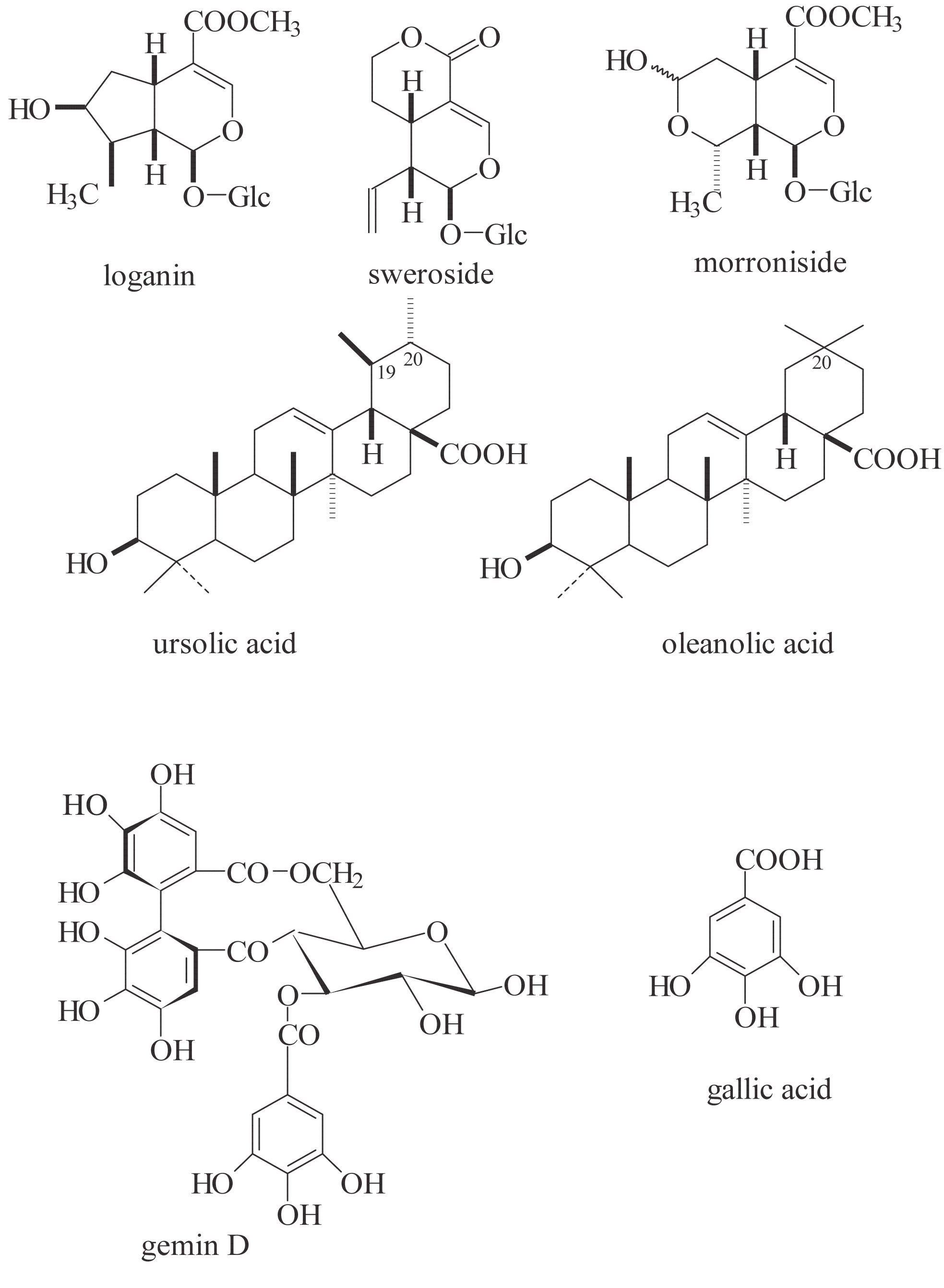
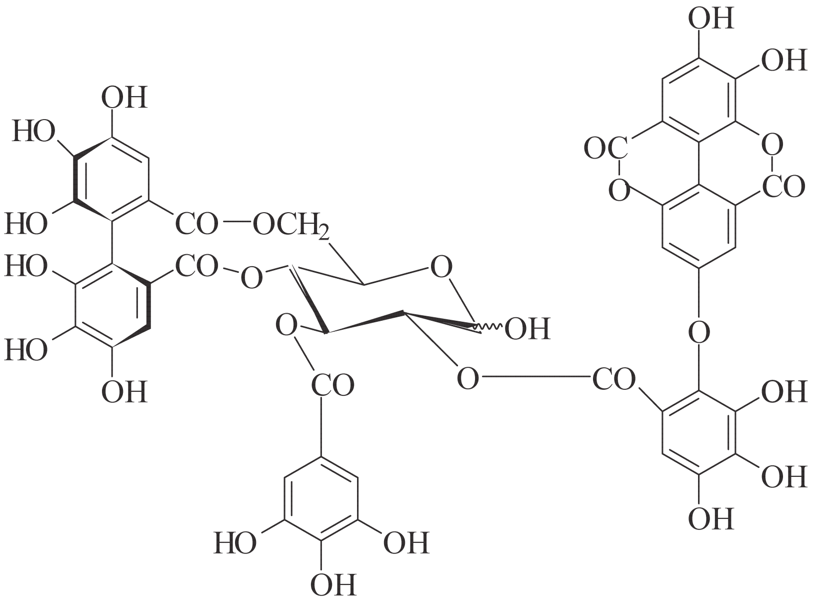


Fig. 1. Chemical structures of compounds

102-2. 山茱萸 Corni Fructus

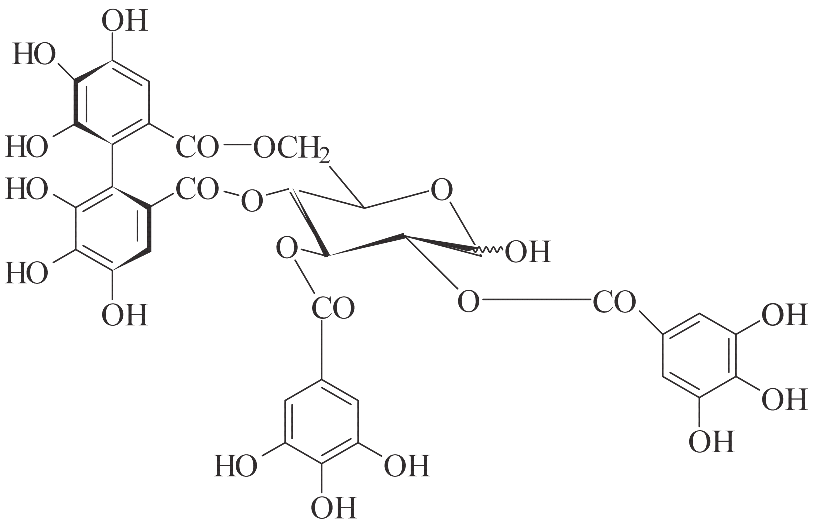
* *Cornus officinalis* Sieb. et Zucc. [Cornaceae]



cornusiin B

*(*Cornus officinalis*)

** *Chem. Pharm. Bull.* **37,** 2083 (1989)



tellimagrandin 1

Fig. 1. Chemical structures of compounds

102-3-1. 山茱萸 Corni Fructus

* *Cornus officinalis* Sieb. et Zucc. [Cornaceae]

** Noriko Yamabe, Ki Sung Kang, Yosuke Matsuo, Takashi Tanaka, and Takako Yokozawa: *Biol. Pharm. Bull.* **30**(7), 1289-1296 (2007)

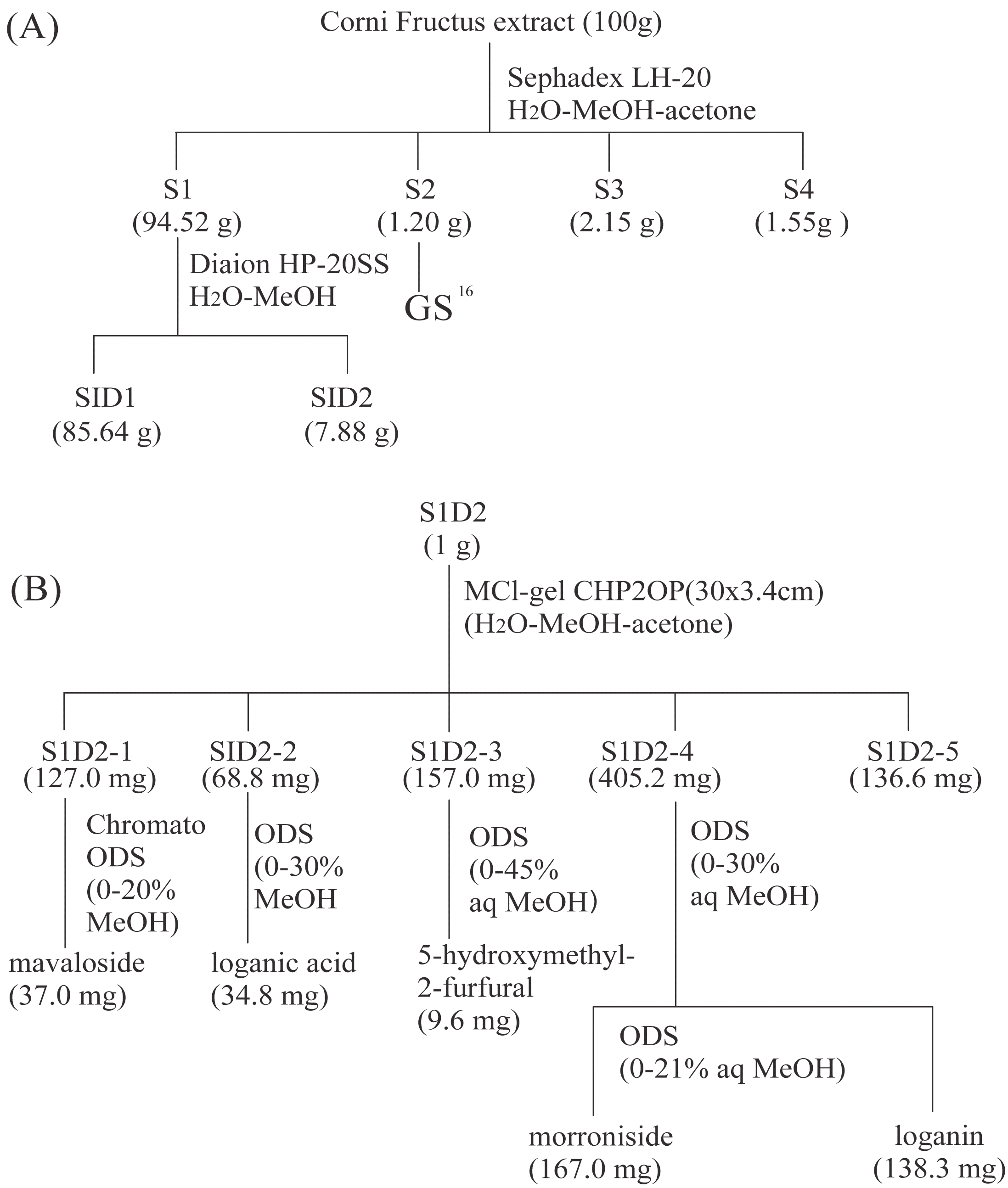


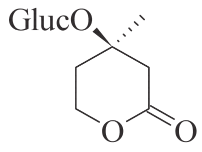
Fig. 1. Fractionation and Isolation of Compounds from Corni Fructus

102-3-2. 山茱萸 Corni Fructus

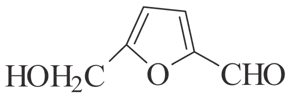
* *Cornus officinalis* Sieb. et Zucc. [Cornaceae]

** Continues 102-3-1.

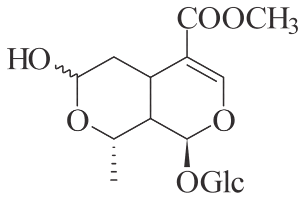
(A)



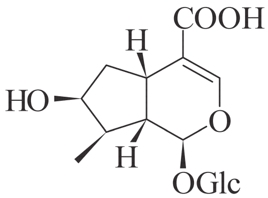
mevaloside



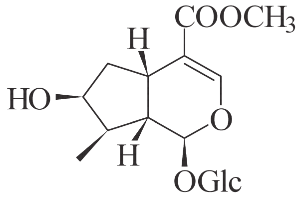
5-hydroxymethyl-2-furfural



morroniside

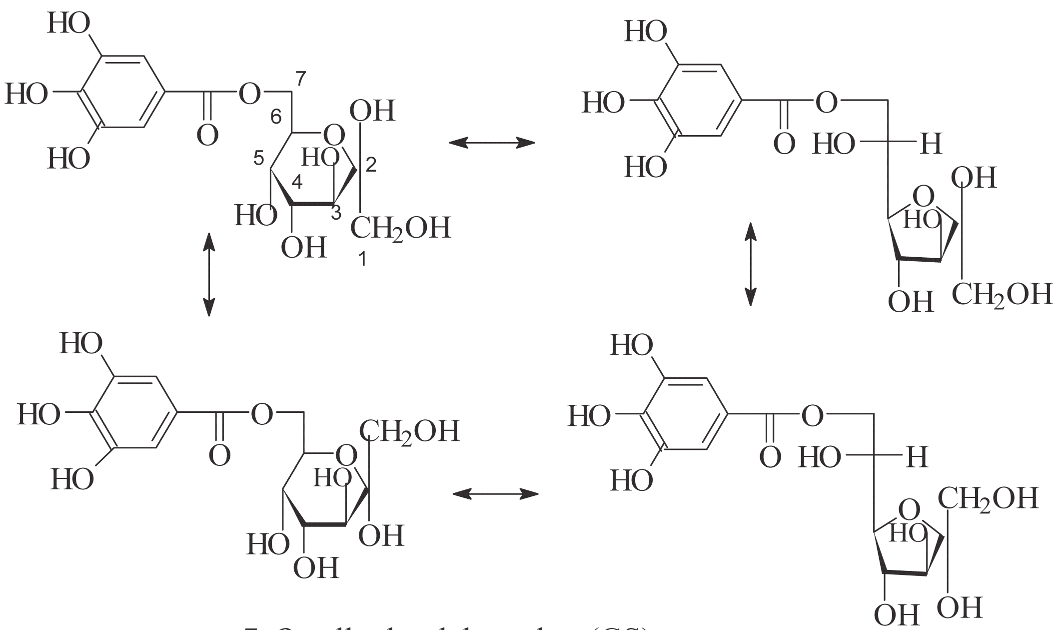


loganic acid



loganin

(B)



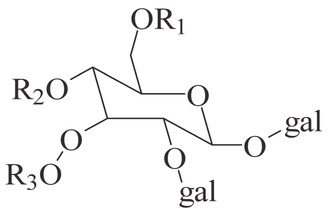
7-***O***-galloyl sedoheptulose(GS)16)

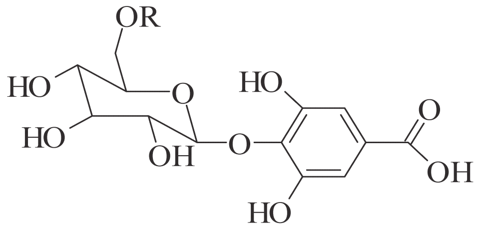
Fig. 2. Chemical Structures of Isolated Compounds in SID2 (A) and S2 (B) Fraction

102-4. 山茱萸 Corni Fructus

* *Cornus officinalis* Sieb. et Zucc. [Cornaceae]

** Jun Lee, Dae Sik Jang, Nan Hee Kim, Yun Mi Lee, Junghyun Kim, and Jin Sook Kim: *Biol. Pharm. Bull.* **34**(3) 443-446 (2011)





1 R_1=R_2=H, R_3=galloyl
2 R_1=galloyl, R_2=R_3=H
3 R_1=R_3=galloyl, R_2=H
4 R_1=R_2=galloyl, R_3=H
5 R_1=R_2=R_3=galloyl
6 R_1+R_2=(*S*)-HHDP, R_3=galloyl

7 R=H
8 R=galloyl

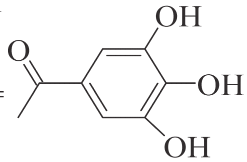
galloyl=


Fig. 1. Structures of Compounds **1**--**8** from the Seeds of *Cornus officinalis* Sieb. et Zucc.

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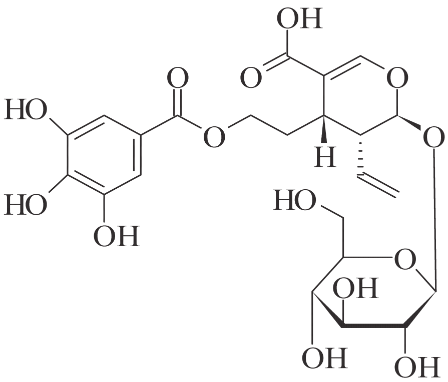
* 1,2,3-tri-***O***-galloyl-β–D-glucose (**1**), 1,2,6-tri-***O***-galloyl-β–D-glucose (**2**), 1,2,3,6-tetra-***O***-galloyl-β–D-glucose (**3**), 1,2,4,6-tetra-***O***-β–D-glucose (**4**), 1,2,3,4,6-penta-***O***-galloyl-β–D-glucose (**5**), and tellimagrandin II (**6**), and two phenolic acids, gallic acid 4-***O***-β–D-glucoside (**7**) and gallic acid 4-***O***-β–D-(6'-***O***-galloyl)-glucoside (**8**), were isolated.

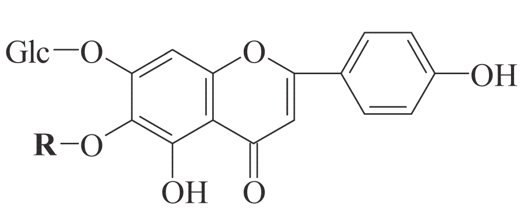


cornuside

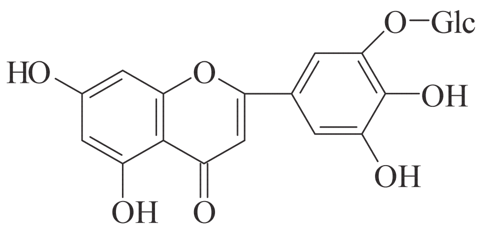
* Yun Ho Choi et al : *Biol. Pharm. Bull.* **34**(7) 959-966 (2011)

104. 車前子 Plantaginis Semen

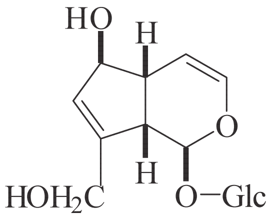
* *Plantago asiatica* Linn'e [Plantaginaceae]
(=*P. major* L. var. *asiatica* Decne.)



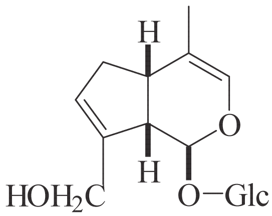
plantaginin : R=H
homoplantaginin : R=CH_3



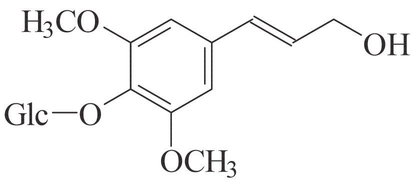
plantagoside



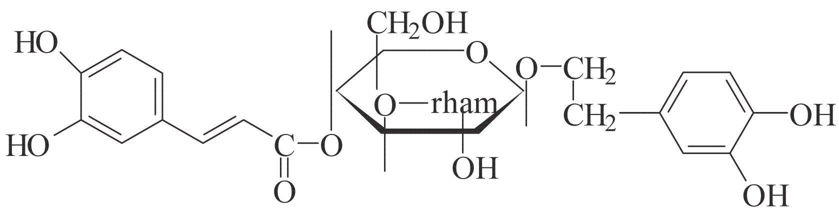
aucubin



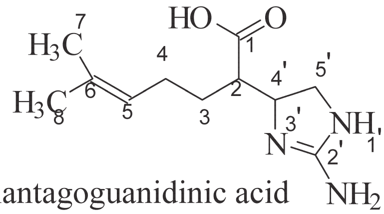
geniposidic acid



syringin



acteoside

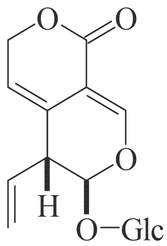


plantagoguanidinic acid

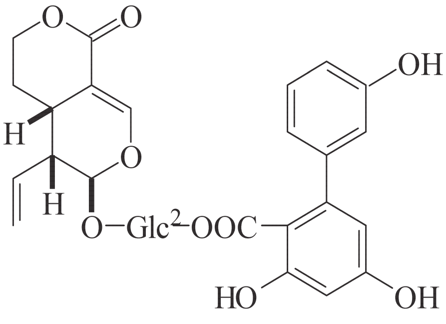
Fig. 1. Chemical structures of compounds

105-1. 龍膽 Gentianae Scabrae Radix

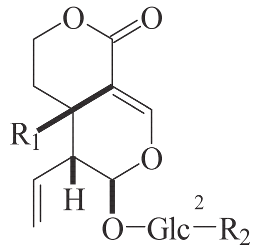
* *Gentiana scabra* Bunge [Gentianaceae]



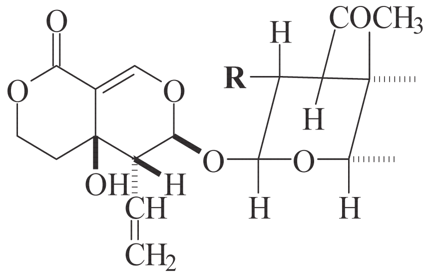
gentiopicrin
(gentiopicroside)

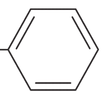


amarogentin



swertiamarin : R_1=OH, R_2=H
sweroside : R_1=H, R_2=H

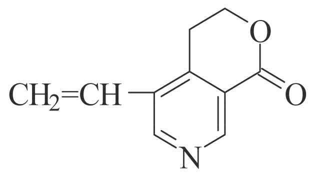


triforoside (R=$COCH_3$)
benzoyltriforoside (R=CO– )

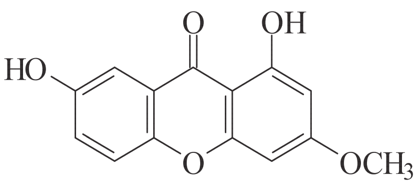
Glc $\overset{\beta}{-}$---- $\overset{\alpha}{}$Glc$\overset{\beta}{-}$----Fruc

gentiobiose sucrose

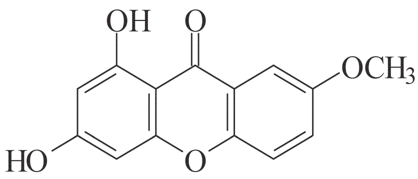
gentianose



gerntianine



gentisin



isogentisin

Fig. 1. Chemical structures of compounds

105-2. 龍膽 Gentianae Scabrae Radix

* Rie Kakuda, Chie Ueno, Nagisa Kobayashi, Masafumi Kikuchi, Yasunori Yaoita and Masao Kikuchi:
Natural Medicines, **58**(1), 22-26 (2004)

** Triterpenoids

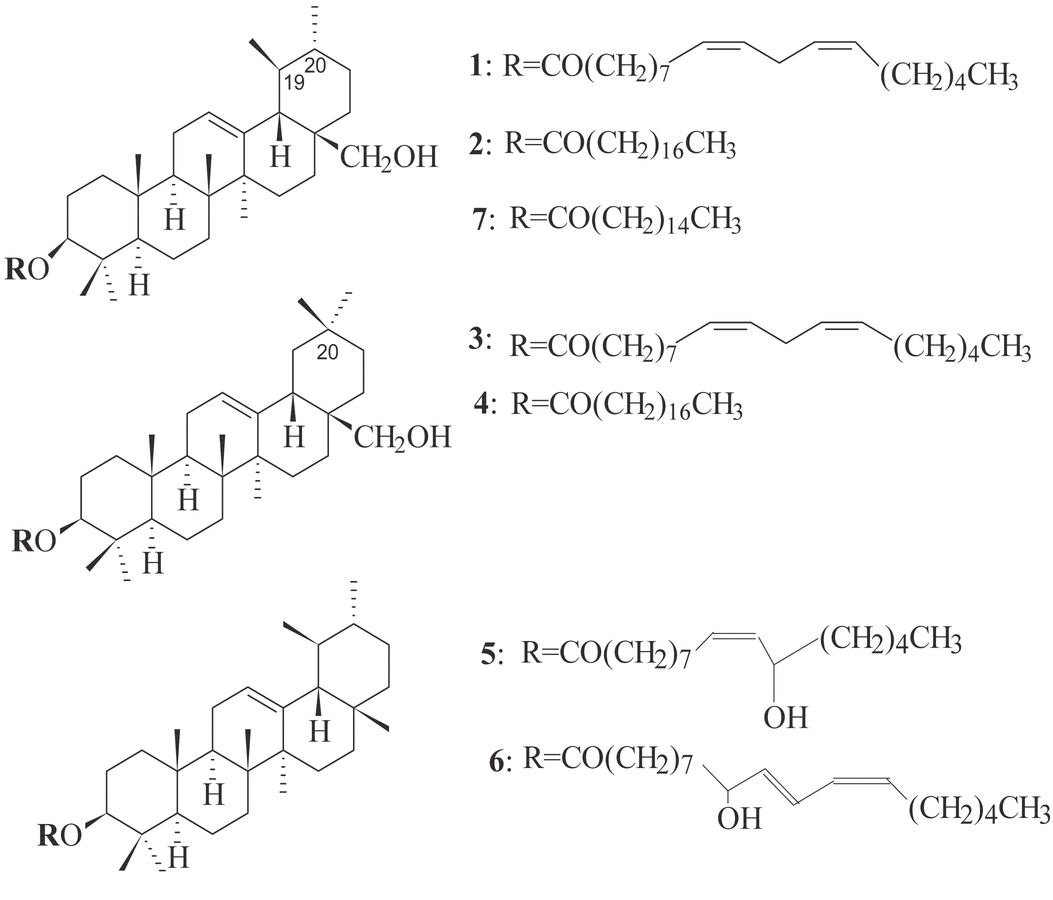


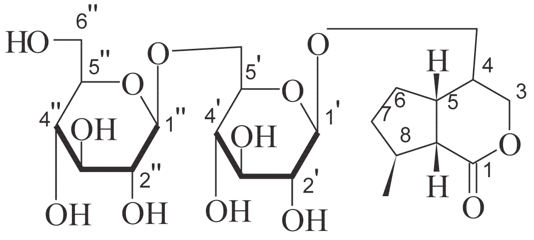
Fig. 1. Chemical Structures of Compounds **1**--**7**

* **1**: uvaol 3-***O***-linoleate, **2**: uvaol 3-***O***-stearate, **3**: erythrodiol 3-***O***-linoleate, **4**: erythrodiol 3-***O***-stearate, **5**: α−amyrin 3-***O***-coriolate, **6**: α−amyrin 3-***O***-dimorphecolate, **7**: uvaol 3-***O***-palmitate.

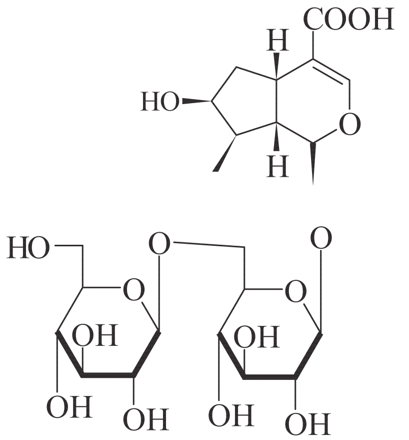
105-3. 龍膽 Gentianae Scabrae Radix

* *Gentiana scabra* Bunge [Gentianaceae]

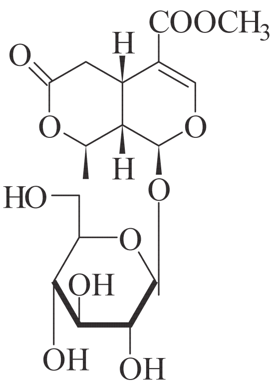
** Kyoa .t, Kikuchi M, Kakuda R, Yaoita Y, and Kikuchi M, *Natural Medicines,* **59**(4), 178-180 (2005)



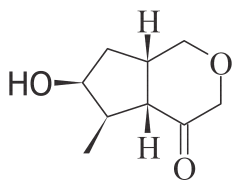
1. gentianaside



2. 6'-***O***-β–D-glucopyranosyl loganic acid



3. 8-epikingside



4. boncin

Fig. 1. Chemical structures of compounds **1--4**

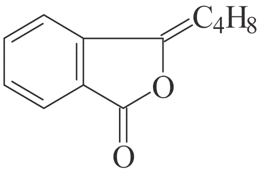
VIII・婦産科系疾患

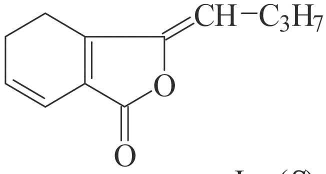
106 ~ 115

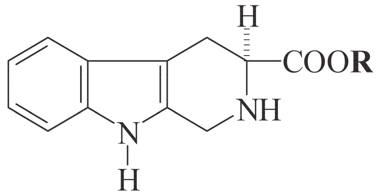
△：成分未表示

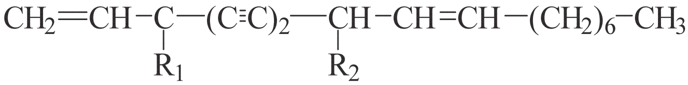
106-1. 當歸 Angelicae Radix

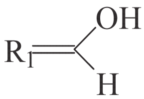
Angelica sinensis Diels (China)
A. acutiloba Kitagawa (Japan) [Umbelliferae]

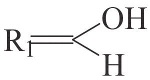

butylidenephthalide


ligustilide

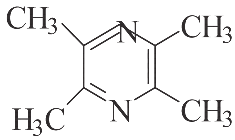

I: (*S*)-1, 2, 3, 4-tetrahydro-β-carboline-3-carboxylic acid :R=H
II. methylester of I. :R=CH3.HCl-salt

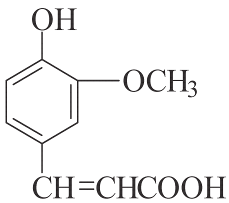


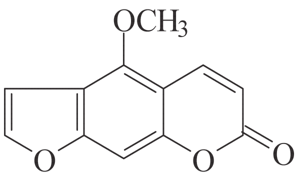
falcarinol  R_2=H

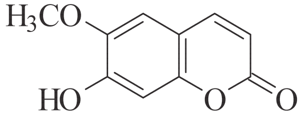
falcarindiol  R_2=OH

falcarinolone R_1=O R_2=OH


tetramethylpyrazune


ferulic acid


bergaptene


scopoletin

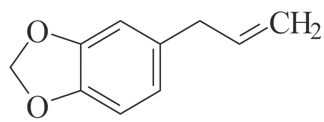
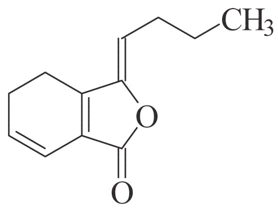

safrole

Fig. 1. Chemical structures of compounds

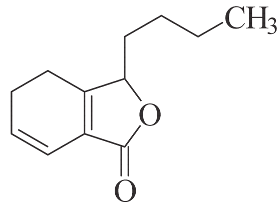
106-2. 當歸 Angelicae Sinensis Radix

* *Angelica sinensis* Diels [Umbelliferae]

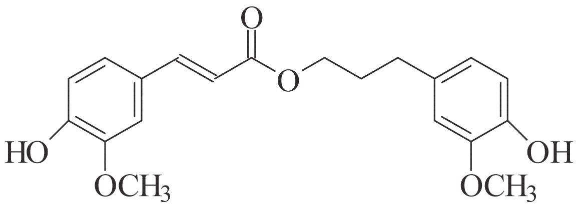
** Tao Yi, Kelvin Sze-Yin, Leung, Guang-Hua Li, Hao Zhang, and Leivin Chan, *Chem. Pharm. Bull.* **53**(11), 1480-1483 (2005)



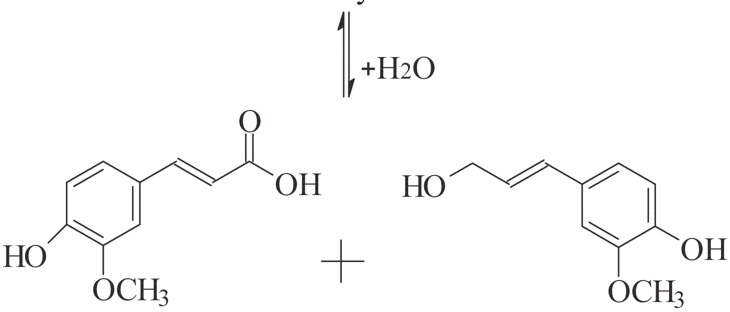
Z-ligustilide(LIG)



* senkyunolide A(SA)
*(*Ligusticum chuanxiong* Hort.)



coniferyl ferulate



ferulic acid

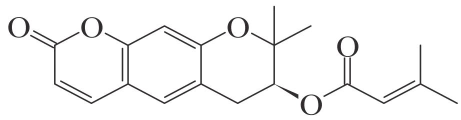
coniferyl alcohol

Fig. 1. Chemical structures of compounds

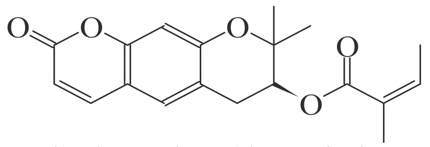
106-3. 當歸 Angelicae Radix

* *Angelica gigas* Naki [Umbelliferae}

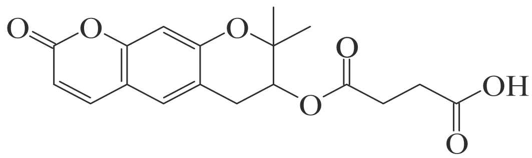
** Bimit Mahat, Jung-woo Chae, In-hwan Baek, Gyu-yong Song, Jin-sook Song, Seong-kwon Cho, and Kwang-il Kwon:
Biol. Pharm. Bull. **35**(7) 1084-1090 (2012)



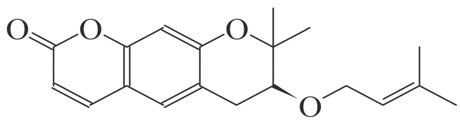
Decursin (main component of *Angelica gigas*)   Molecular weight=328.4



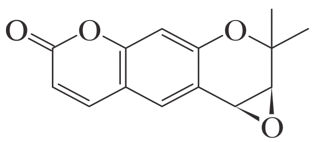
Decursinol angelate (decursin isomer)   Molecular weight=328.4



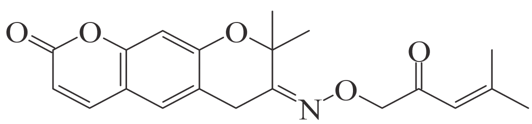
Diketone decursin (decursin derivative)   Molecular weight=346.3



Ether decursin (decursin derivative)   Molecular weight=314.4



Epoxside decursin (decursin derivative)   Molecular weighy=244.3



Oxim decursin (decursin derivative)   Molecular weight=341.4

Table 1. Molecular Weight snd Structure of Decursin and Their Derivatives

107-1-1. 益母草 Leonuri Herba

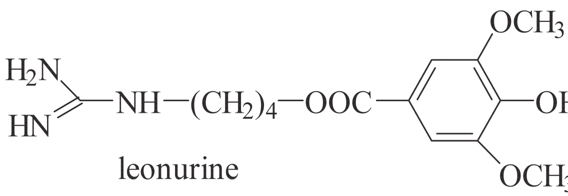
**Leonurus sibirica* L.(=*L. japonicus*) [Labiatae]
Katsuhiko Hayashi, Rie Ikoma and Takeshi Deyama,
Natural Medicines, **55**(5), 276 (2001)

** (+)-pinoresinol-***O***-β–D-glucopyranoside, 8-acetylharpagid, apigenin-7-neohesperidoside, quercetin 3-neohesperidoide

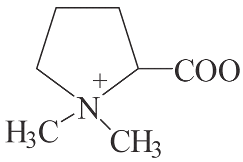
Alkaloid: leonurine, stacydrine, leonuridine, leonurinine

Flavonoid: rutin

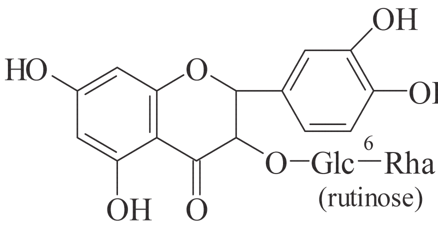
Organic acid: benzoic acid, lauric acid, linolenic acid, oleic acid



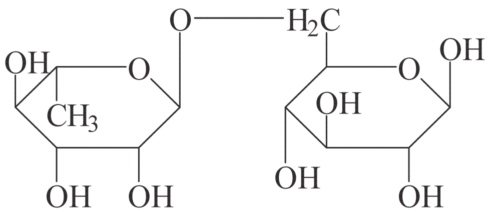
leonurine



stacydrine



rutin



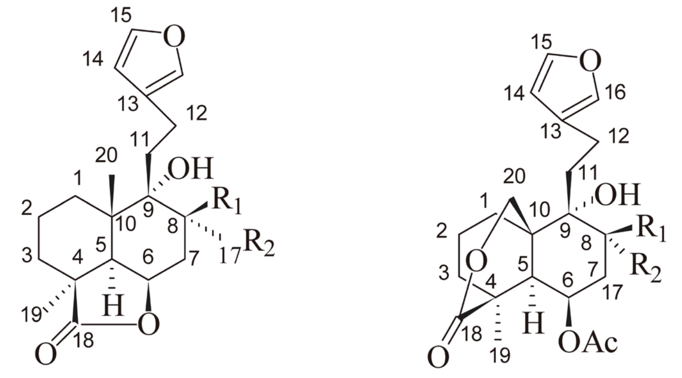
rutinose

Fig. 1. Chemical structures of compounds

107-1-2. 益母草 Leonuri Herba

* *Leonurus sibirica* L. [Labiatae]

** Mitsuru Satoh, et al: *ChemPharm Bull*: **51**(3), 341-342 (2003)



1 : R_1 = OH, R_2 = CH_2OH **2** : R_1, R_2 = CH_2

3 : R_1 = R_2 = —OCH_2 **5** : R_1 = H, R_2 = CH_3

4 : R_1 = OH, R_2 = CH_3 **6** : R_1, R_2 = —OCH_2

Fig. 1. Chemical structures of compounds

* **1** : LS-1	**2** : LS-2
3 : leonotinin	**5** : dubiin
4 : leonotin	**6** : nepetaefuran

107-1-3. 益母草 Leonuri Herba

* Two New Diterpenes from Fresh Leaves of *Leonurus japonicus*

** Hiroyuki Fuchino, Akihiro Daikonya, Takeo Kumagai, Yukihiro Goda, Yutaka Takahashi, and Nobuo Kawahara:
Chem. Phram. Bull. **61**(5) 497-503 (2013)

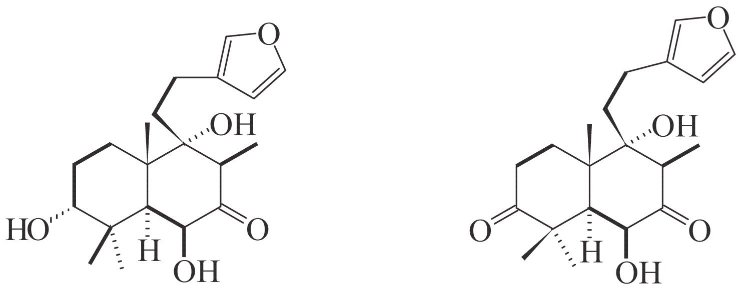


Fig. 1. Chemical Structures for **1** and **2**

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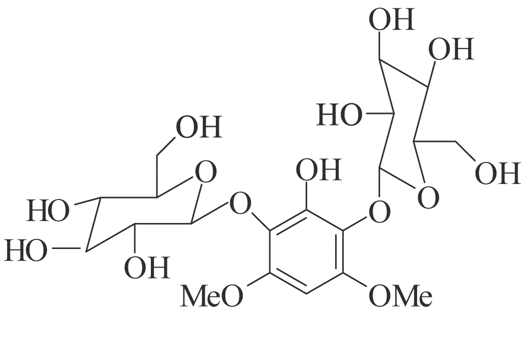
* Compounds **1**: 15,16-epoxy-3α,6β,9α−trihydroxylabda -13(16),14-dien-7-one,
Compounds **2**: 15,16-epoxy-6β,9α−dihydroxyylabda-13(16),14-dien-3,7-dione

---

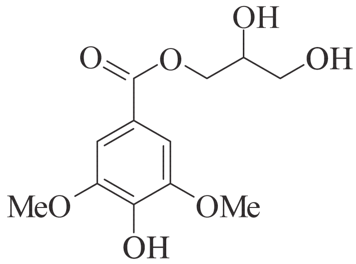
107-2. 益母草 Leonuri Herba

* *Leonurus sibiricus L.* var. *albiflora* Miquel. [Labiatae]

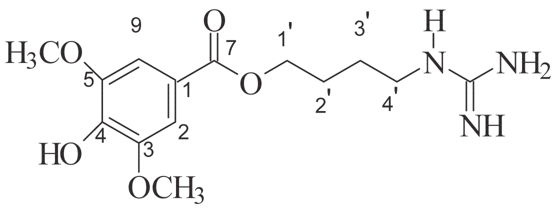
** Sheng-Ming Pan, Hsiou-Yu Ding, Wen-Liang Chang, and Hang-Ching Lin, *The Chinese Pharmaceutical Journal* (*Chin. Pharm. J*), **58**(1), 35-40 (2006)



1: yimunoside A



2: yimunol A



leonurine(* Antiplatelet effect)

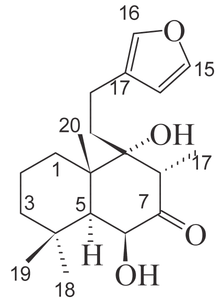
* Hang-Ching Lin et al: *Taiwan pharmaceutical Journal,* **59**(3), 149-152 (2007)

Fig. 1. Chemical structures of compounds

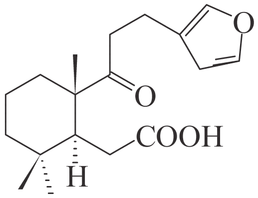
107-3-1. 益母草 Leonuri Herba

New Diterpenoids with estrogen sulfotransferase inhibitoty activity from *Leonurus sibirica* L.

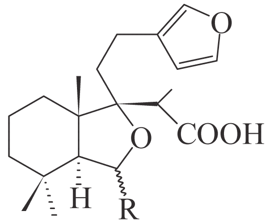
* Yuji Narukawa, Akiko Niimura, Hitomi Noguchi, Hiroomi Tamura, Fumiyuki Kiuchi:*J Nat Med* **68**(1) 125-131 (2014)



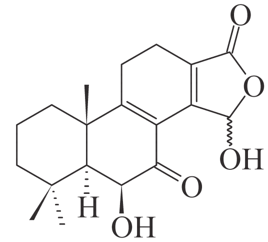
1



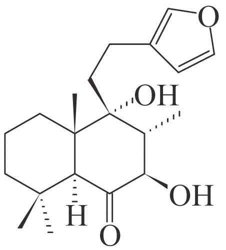
2



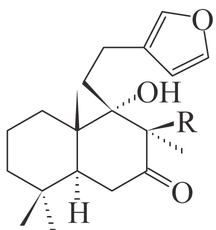
3: R=OH
3a:R=α−OAc



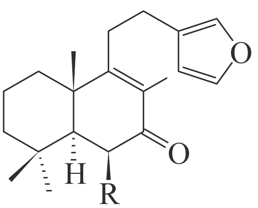
4



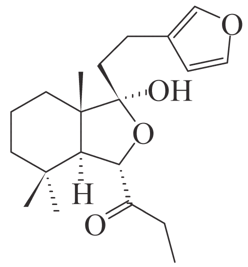
5



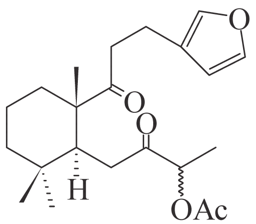
6: R=OAC
7: R=H



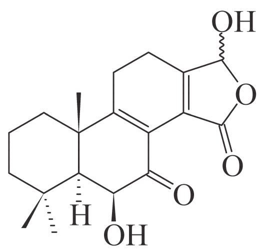
8: R=OH
9: R=H



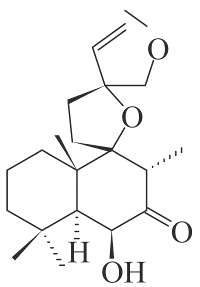
10



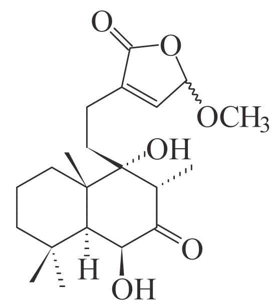
11



12



13



14

Fig. 1. Chemical Structures of Compounds **1-14** from *Leonurus sibiricus* L.

107-3-2. 益母草 Leonuri Herba

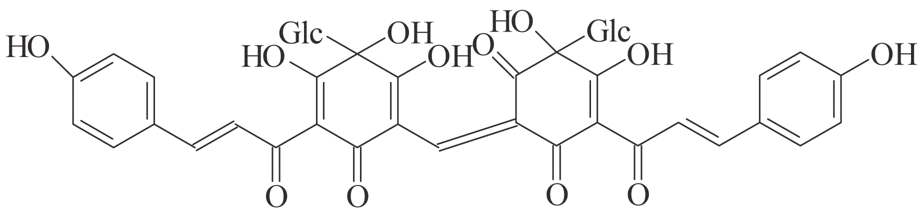
New Diterpenoids with estrogen sulfotransferase inhibitoty activity from *Leonurus sibirica* L.

* Yuji Narukawa, Akiko Niimura, Hitomi Noguchi, Hiroomi Tamura, Fumiyuki Kiuchi: *J Nat Med* **68**(1) 125-131 (2014)

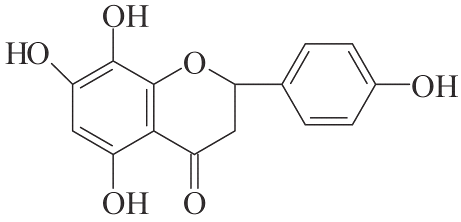
Abstract: Four new diterpenoids (**1-4**), along with eighy known diterpenoids (**5-12**) were isolated from the acetone extract of *Leonurus* herb
(aerial parts of *Leonurus sibiricus* Li.)
New compounds **1-4:** isoleoheterin (**1**), leosibiric acid A (**2**), leosibilic acid B (**3**), and isosibiricinone B (**4**).
Known compounds: leoheterin (**5**), galeopsin (**6**), hispanolone (**7**), hispanone (**9**), epimeric mixure 4:1 (**10, 11**), 6β-hydroxy-15,16-epoxu-labda-8,13(16),14-trien-7-one (**8**),

108-1. 紅花 Carthami Flos

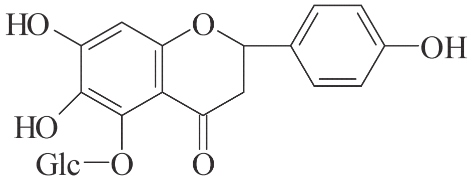
* *Carthamus tinctorius* Linn'e [Compositae]



carthamin



carthamidin



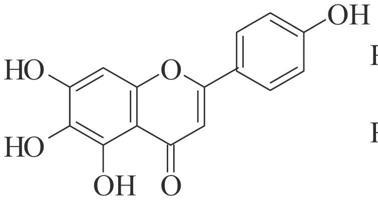
neocarthamin

Fig. 1. Chemical structures of compounds

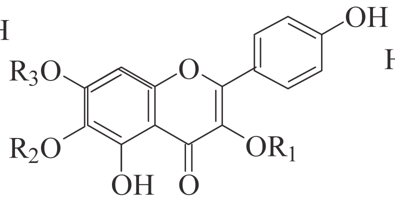
108-2. 紅花 Carthami Flos

* *Carthamus tinctoriuns* L. [Compositae]

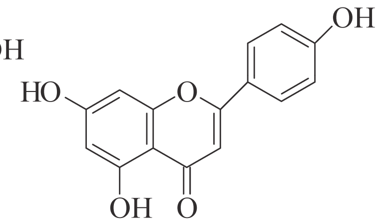
** X.I. Huang, M. Hattori, T. Namba :
Syoyakugaku Zasshi, **46** (3), 210-216 (1992)



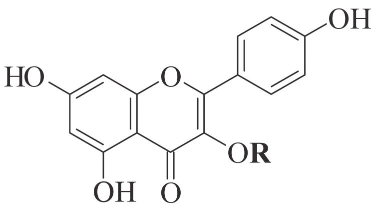
(**1**):scutellarein



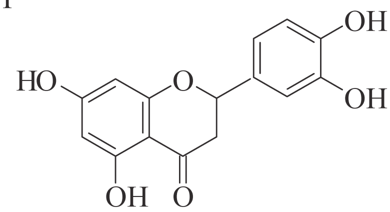
(**2**): R1=R2=R3=H
(**10**): R1-Glc, R2=R3=H
(**11**): R1=R2=Glc, R3=H
(**12**): R1=R2=R3=Glc
(**13**): R1=Glc-Rha, R2=Glc, R3=H



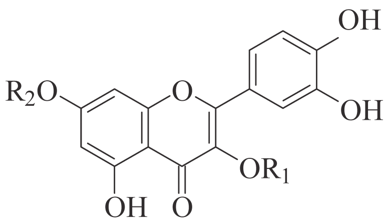
(**3**): apigenin



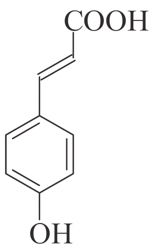
(**4**): R=H
(**5**): R=Glc
(**14**): R=Glc-Rha



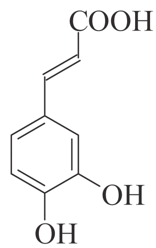
(**6**):eriodictyol



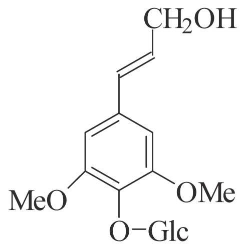
(**7**): R1=R2=H
(**15**): R1=Glc, R2=H
(**16**): R1=R2=Glc



(8): 4-hydroxycinnamic acid



(**9**): 3,4-dihydroxycinnamic acid



(**17**): syringin

Chart 1. Structures of Compounds Isolated from a Methanol Extract (MeOH) of Carthami Flos

*(**2**): 6-hydroxykaempferol	(**4**): kaempferol	(**7**): quercetin
(**10**): 6-hydroxykaempferol-3-glc	(**5**): astragalin	(**15**): quercetin-3-glc
(**11**): 6-hydroxykaempferol-3, 6-diglc	(**14**): kaempferol-3-rut	(**16**): quercetin-3, 7-diglc
(**12**): 6-hydroxykaempferol-3, 6, 7-triglc		
(**13**): 6-hydroxykaempferol-3rut, 6-glc		

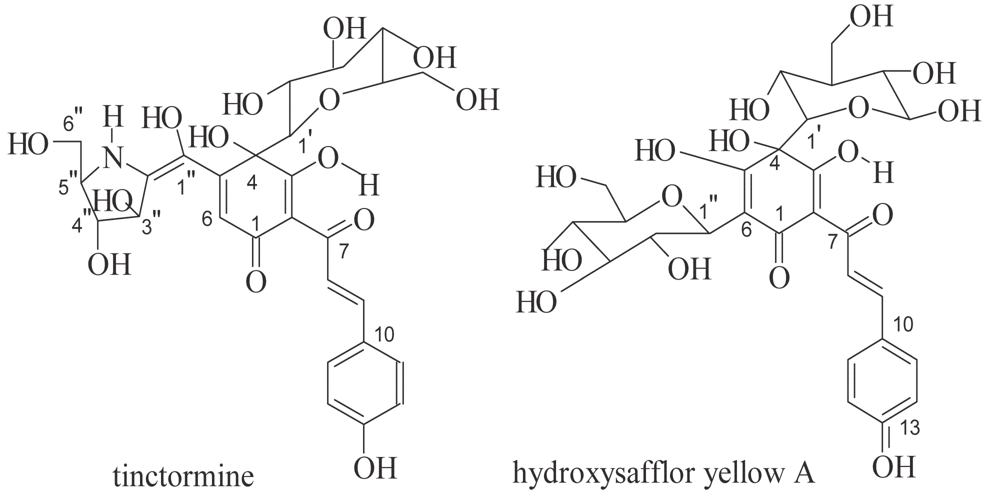
108-3. 紅花 Carthami Flos

* *Carthamus tinctorius* L.[Compositae]

** Meselhy M, Kadota S, Momose Y, Hattori M, and Namba T: *Chem. Pharm. Bull.* **40**(12), 3355-3357 (1992)

*** Tinctormine; Ca^{2+} antagonist

**** Quinochalcone C-glycoside :Namba T et al : *Chem. Pharm. Bull.* **41**(10), 1796-1802 (1993)



tinctormine

hydroxysafflor yellow A

Fig. 1. Chemical structures of compounds

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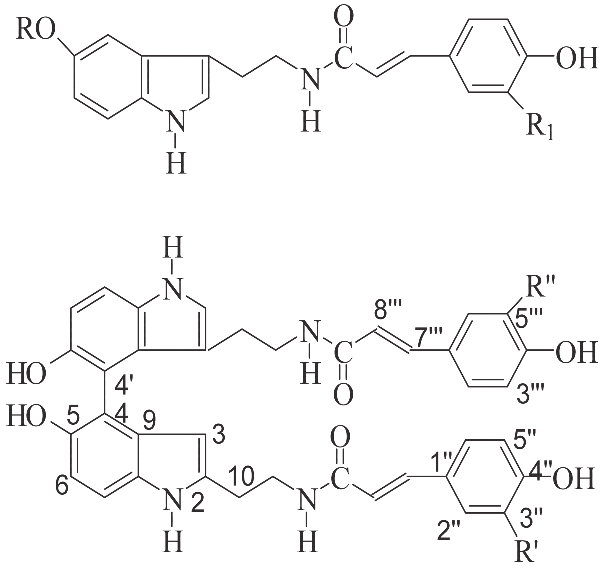
* Hydroxysafflor Yellow A Alleviates Early Inflammatory Response of Bleomycin-Induced Mice Lung Injury
[Yan Wu, Lin Wang, Ming Jin, and Bao-xia Zang: *Biol. Pharm. Bull.* **35**(4) 515-522 (2012).

108-4. 紅花 Carthami Flos

* *Carthamus tinctorius* L. [Compositae]

** Zhang H-L, Nagatsu A, Watanabe T, Sakakibara J, and Okuyama H: *Chem. Pharm. Bull.* **45**(12), 1910-1914 (1997)

*** Seven antioxidant serotonin derivatives were isolated from safflower oil cake



1: R'=OCH_3. R=H
2: R'=H, R=H
6: R'=H, R=glc
7: R'=OCH_3, R=glc

3: R'=H, R"=H
4: R'=OCH_3, R"=H
5: R'=R"=OCH_3

Fig. 1. Chemical structures of compounds **1--7**

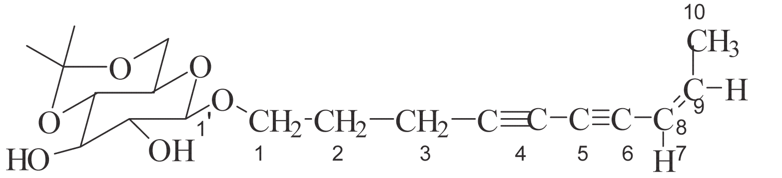
1: N-[2-(5-hydroxy-1***H***-indol-3-yl)ethyl]ferulamide
2: N-[2-(5-hydroxy-1***H***-indol-3-yl)ethyl]-*p*-coumaramide
3: N,N'-[2,2'-(5,5'-dihydroxy-4,4'-bi-1***H***-indol-3,3'-yl)diethyl]-di-*p*-coumaramide
4: N-[2-[3'-[20(*p*-coumaramido)ethyl]-5,5'-duhyderoxy-4,4'-bi-1***H***-indol-3-yl]ethyl]ferulamide
5: N,N'-{2,2'-(5,5'-dihydroxy-4,4'-bi-1***H***-indol-2,3'yl)diethyl]-diferulamide
6: N-[2-[5-(β–D-glucosyloxy)-1***H***-indol-3-yl)ethyl]-*p*-coumaramide
7: N-[2-[5-(β–D-glucosyloxy)-1***H***-indol-3-yl)ethyl]ferulamide

108-5. 紅花 Carthami Flos

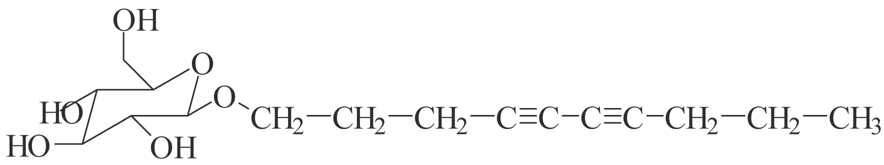
* *Carthamus tinctorius* Linn'e [Compositae]

** Yu-Zhi Zhou, Hong-Yu Ma, Huan Chen, Li Qiao, Yao Yao, Jia-Qing Cao, and Yue-Hu Pei, *Chem. Pharm. Bull.* **54**(10), 1455-1456(2006)

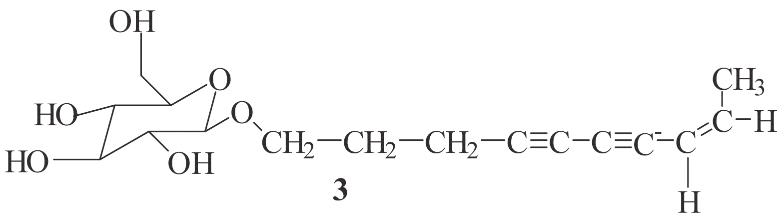
*** New Acetylenic Glucosides



1



2



3

Fig. 1. Chemical structures of compounds

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* **1.** carthamoside A1 : 4',6'-acetonide-8 *Z*-decaene-4,6-diyne-1-***O***-β–D-glucopyranoside
2. carthamoside A2 : 4,6-decadiyne-1-***O***-β–D-glucopyranoside
3. 8 *Z*-decaene-4,6-diyne-1-***O***-β–D-glucopyranoside

108-6. 紅花 Carthami Flos

**Carthamus tinctorius* L. [Compositae]

**Structural Identification of a New Tri-*p*-coumaroylspermidine with Serotonin Transporter Inhibition from Safflow

*** Gan Zhao, Guo-Wei Qin, Yue Gai, and Li-He Guo: *Chem. Pharm. Bull.* **58**(7) 950-952 (2010)

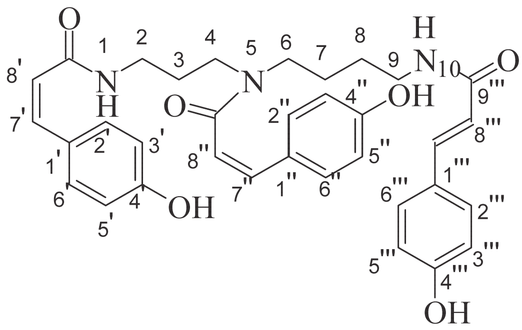


Fig. 1. Chemical Structure of N_1, N_5-(Z)-N_{10}-(E)-Tri-*p*-coumaroylspermidine

Numbers in the schematics, 1-10, 1'-9', 1''-9'', and 1'''-9''',refering to Table 1.

109. 香附子 Cyperi Rhizoma

* *Cyperus rotundus* Linn'e [Cyperaceae]

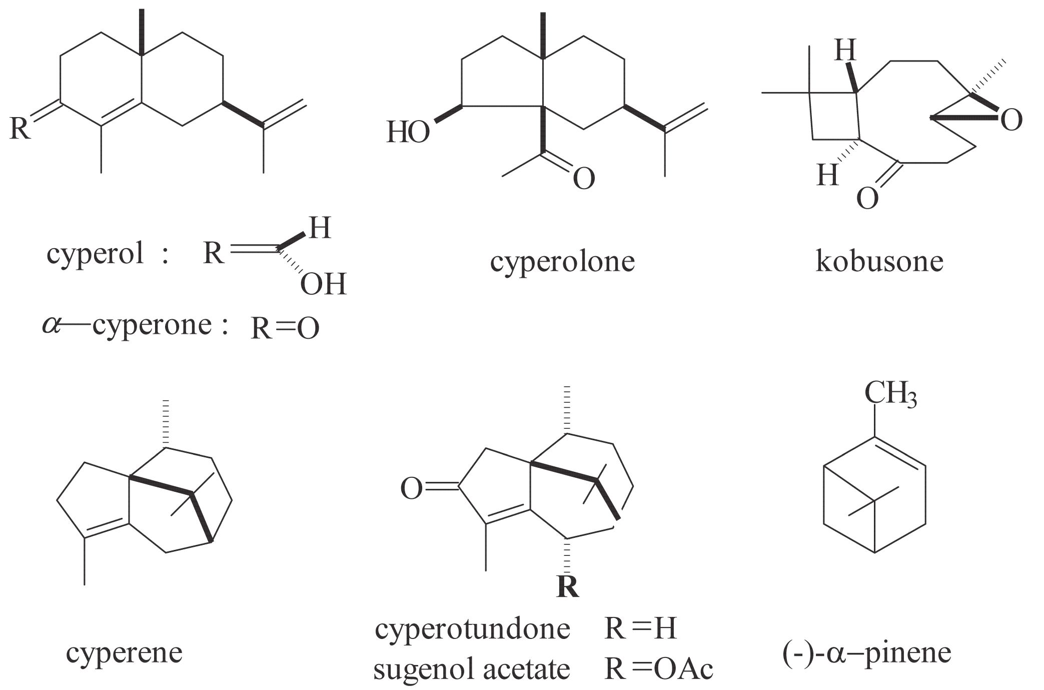
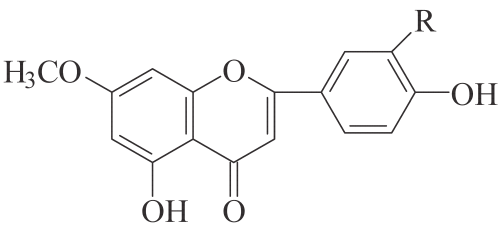


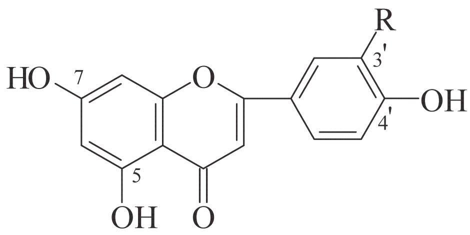
Fig. 1. Chemical structures of compounds

110-1. 芫花 Daphnis Genkwae Flos

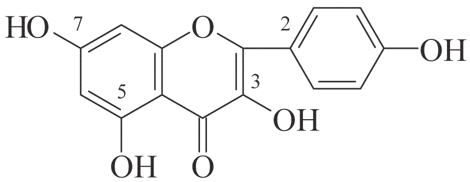
* *Daphne genkwa* Sieb. et Zucc. [Thymelacaceae]



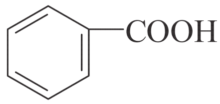
genkwanin : R=H
hydroxygenkwanin : R=OH



apigenin : R=H
luteolin : R=OH



kaempferol



benzoic acid

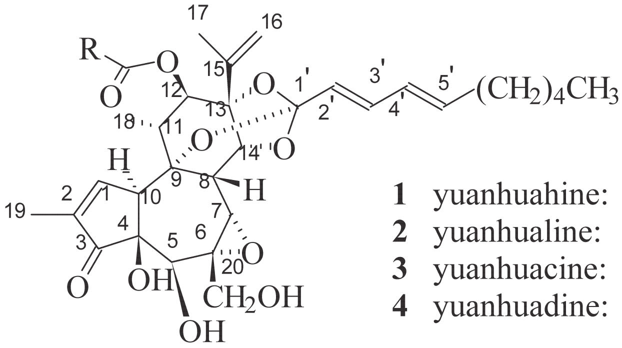
Fig. 1. Chemical structures of compounds

110-2. 芫花 Daphnis Genkwae Flos

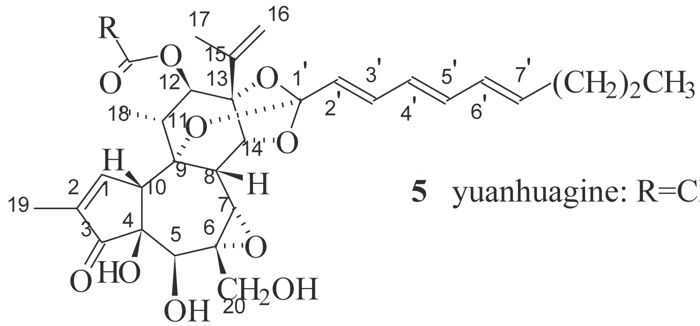
* *Daphne genkwa* Sieb. et Zucc. [Thymelaceae]

** Ji-Young Hong, Joo-Won Nam, Eun-Kyoung Seo,and Sang Kook Lee: *Chem. Pharm. Bull.* 58(2) 234-237 (2010)

*** Daphnane diterpene Esters



1 yuanhuahine: R=CH2CH3
2 yuanhualine: R=CH2CH2CH3
3 yuanhuacine: R=Ph
4 yuanhuadine: R=CH3

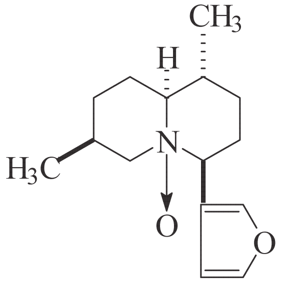


5 yuanhuagine: R=CH3

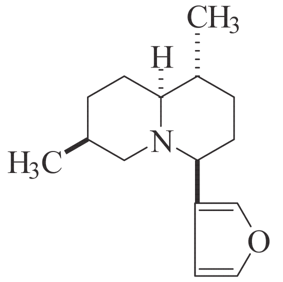
Fig. 1. Chemical Structure compounds of **1**--**5**

113. 川骨 Nupharis Rhizoma

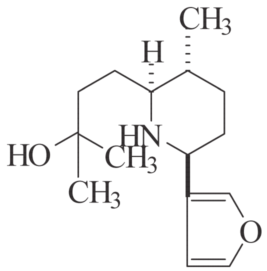
* *Nuphar japonicum* De Candolle [Nymphaeaceae]



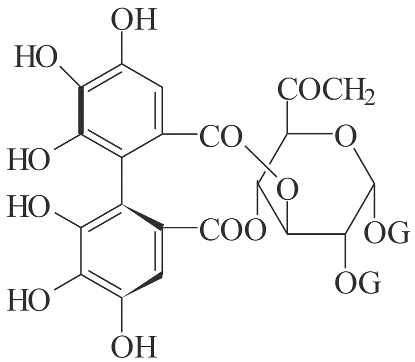
nupharidine



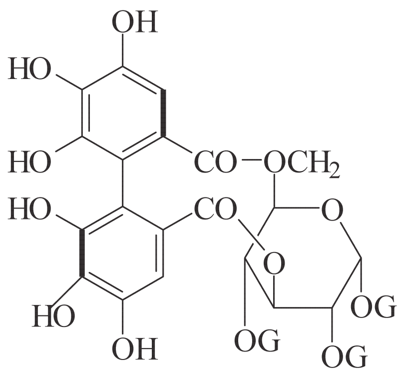
desoxynupharidine



nupharamine



nupharin A



nupharin B

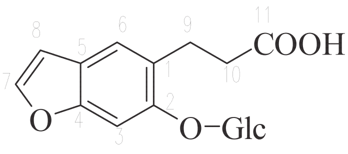
Fig. 1. Chemical structures of compounds

115-1-1. 蛇床子 Cnidii Monnieri Fructus

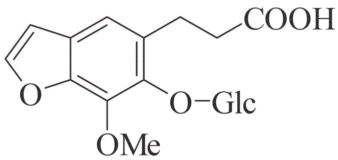
* *Cnidium monnieri* (L.) Cusson [Umbelliferae]

** S. Yahara, C. Sugimura, T. Nohara, Y. Niiho, Y. Nakajima, H. Ito : *Shoyakugaku Zasshi,* **47**(1), 74-78 (1993)

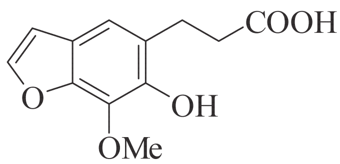
1. *Benzofuran derivatives:*



1. cnidioside A

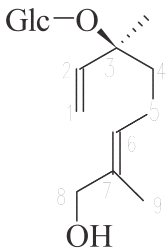


2. cnidioside B

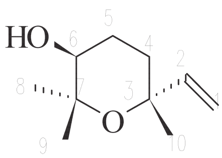


3. cnidiol B

2. *Monoterpenes:*



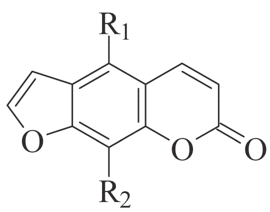
4. cnidioside C



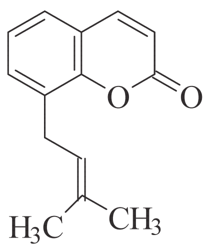
5. cnidiol C

3. *Coumarins*: (antidermatophytic activity)

columbianadin, osthol, edultin, columbianetin, bergapten, isopimpinellin



	R_1	R_2
Imperatorin	H	$OCH_2CH{=}C(CH_3)_2$
bergapten	OCH_3	H



osthol

115-1-2. 蛇床子 CHROMONES FROM *CNIDIUM MONNIERI*

* Kimiye Baba, Hiromu Kawanishi, Masahiko Taniguchi, and Mitsugi Kozawa: *Phytochemistry,* Vol. **31,** No. 4, pp. 1367-1370 (1992)

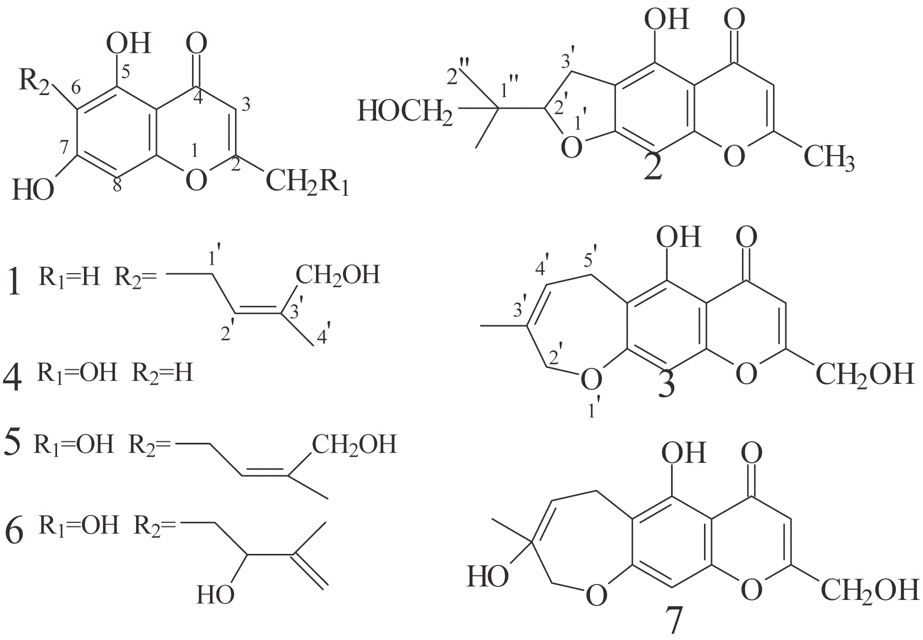


Fig. 1. Chemical structures of compounds **1**--**7**

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* **1**: cnidimol A,
2: cnidimol B
3: karenin
4: cnidimol C
5 : cnidimol D
6 : cnidimol E
7 : cnidimol F

115-2-1. 蛇床子 *Cnidium formosanum* Yabe Fruits

* Hiroshi Miyachi, Akiyoshi Manabe, Tsuneo Tokumori , Yoko Sumida, Takashi Yoshida, Mitsugi Kozawa, and Takuo Okuda: *YAKUGAKU ZASSHI,* **97**(5), 367-371 (1987)

** By Supercritical fluid extraction; furocoumarins; entrainer

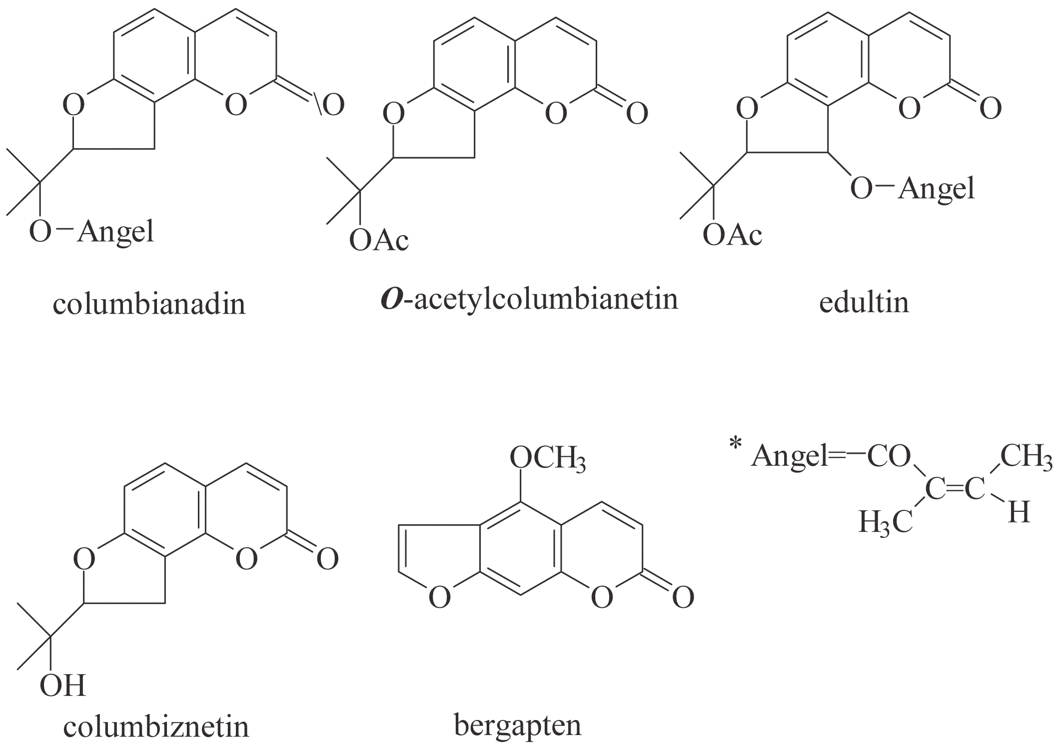


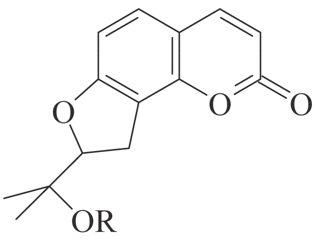
Fig. 1. Chemical structures of compounds

115-2-2. 蛇床子 Coumarins from " She-Chuang-Zi "

* *Cnidium formosanum* Yabe [Umbelliferae]

** Kiyoshi Hata, Mitsugi Kozawa and Kimiye Baba:
YAKUGAKU ZASSHI, **92**(10), 1289-1294 (1972)

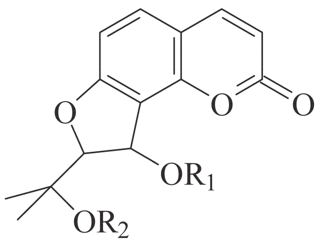
*** *Coumarins*:columbianadin (**I**), archangelicin (**II**), edultin (**III**), ***O***-acetylcolumbianetin (**IV**), bergapten (**V**), isopimpinellin (**VI**), columbianetin (**VII**), and ***O***-isovaleryl-columbianetin (**VIII**), together with two new products which were proved to be 2'(*S*), 3'-(*R*)-3'-isobutyryloxy-*O*-acetyl-2', 3'-dihydrooroselol (**IX**) and 2'(*S*)-*O*-isobutyryl-2', 3'-dihydrooroselol (**X**).



I : R=angeloyl
IV. R=acetyl

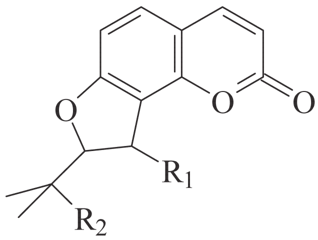
VII. R=H
VIII.R=isovalwryl

X. R=isobutyryl



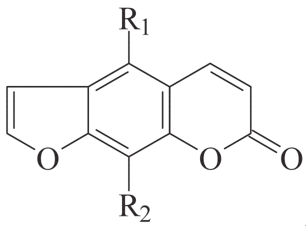
II. R_1, R_2=angeloyl
III. R_1=angeloyl
R_2=acetyl

IX. R_1=isobutyryl
R_2=acetyl

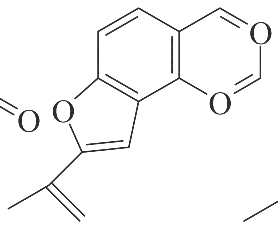


XI. R_1, R_2=H
XII. R_1=**O**-isobutyryl
R_2=**O**-acetyl

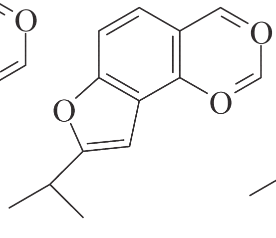
XIII. R_1=H
R_2=**O**-acetyl
XIV. R_1=H
R_2=**O**-2-methyl-butyryl



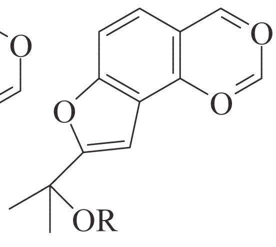
V. R_1=OCH_3
R_2=H
VI. R_1, R_2 =OCH_3



XV



XVI



XVII: R=H
XVIII:R=CH_3

Fig. 1. Chemical structures of compounds

115-3-1. 蛇床子 Chemical Studies on " She Chuang Zi "

* Kimiye Baba, Fumiyo Hamasaki, Yuko Tabata, Mitsugi Kozawa, Gisho Honda and Mamoru Tabata:
Shoyakugaku Zasshi, **39**(4), 282-290 (1986)

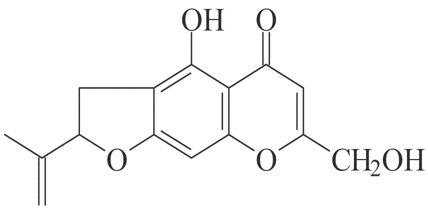
I. *Cnidium monnieri* (L.) Cusson:

Coumarins **:** osthol (**5**), imperatorin (**8**), bergapten (**9**), isopimpinellin (**11**), auraptenol (**6**), demethylauraptenol (**7**), xanthotoxin (**10)**, xanthotoxol (**12**),
Flavone **:**diosmetin (**23**).
Carboxylic acid**:** *p*-coumaric acid (22).
Chromones**:** *dl*-umtatin (**1**), cnidimol A (**2**), cnidimol B (**3**).

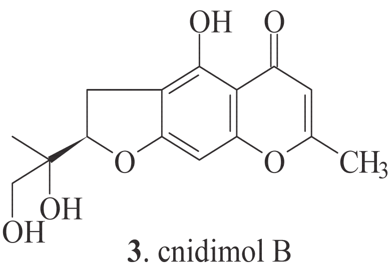
* * Anti-dermatophytic activity

II. *Cnidium formosanum* Yabe:

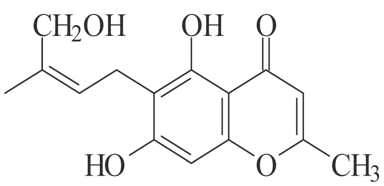
Coumarins: columbianadin (**14**), columbianetin (**15**), ***O*-**acetylcolumbianetin (**16**), archangelicin, (**17**), edultin (**18**), (3'*R*)-3'-isobutyryloxy-***O***-acetylcolumbianetin (=cniforin A) (**19**), (3'*R*)-3'-hydroxycolumbianadin (**20**), angelicin (**21**), cniforin B (**4**).
Flavone**:** diosmetin (**23**).
Chromones**:** cnidimol A (**2**), cnidimol B (**3**).



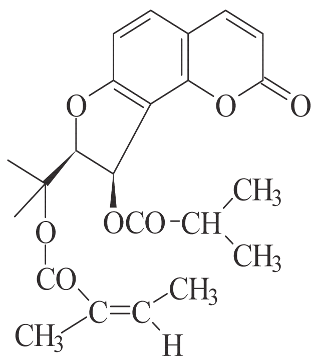
1. dl-umtatin



3. cnidimol B



2. cnidimol A



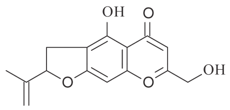
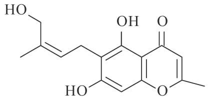
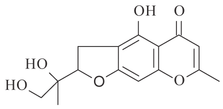
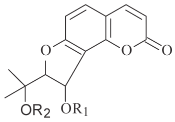
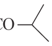
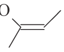
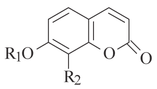
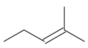
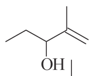
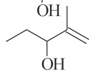
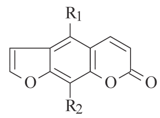
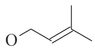
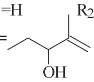
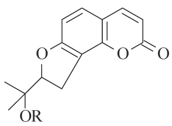
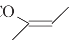
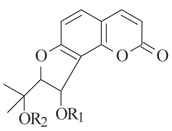
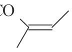
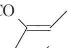
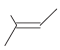
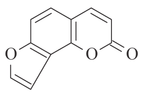
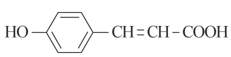
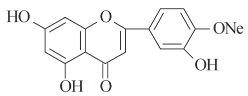
4. cniforin B

Fig. 1. Chemical structures of compounds

115-3-2. 蛇床子 Chemical Studies on " She Chuang Zi "

* Kimiye Baba et al : *Shoyakugaku Zasshi,* **39**(4), 282-290 (1985)

Table I : The Comparison of the Components of the *Cnidium monnieri* and *C. formosanum*

				C. m.	C.f.
			*dl*-umtatin (**1**)	+	
			cnidimol A (**2**)	+	+
			cnidimol B (**3**)	+	+
	R_1=CO 	R_2=CO 	cnifordin B (**4**)		+
	R_1=Me	R_2= 	osthol (**5**)	+	
	R_1=Me	R_2= 	auraptenol (**6**)	+	
	R_1=H	R_2= 	demrthyl-auraptenol (**7**)	+	
	R_1=H	R_2= 	i mperatorin (**8**)	+	
	R_1=OMe	R_2=H	bergapten (**9**)	+	+
	R_1=H	R_2=OMe	xanthotoxin (**10**)	+	
	R_1=R_2=OMe		isopimpinellin (**11**)	+	+
	R_1=H	R_2=OH	xanthotoxol (**12**)	+	
	R_1= 	R_2=OH	isogosferol (**13**)	+	
	R=CO 		columboanadin(**14**)		+
	R=H		columbianetin (**15**)		+
	R=$COCH_3$		O-acetyl-columbianetin (**16**)		+
	R_1=R_2=CO 		archangelicin (**17**)		+
	R_1=CO 	R_2=$COCH_3$	edultin (**18**)		+
	R_1=CO 	R_2=$COCH_3$	cniforin A (**19**)		+
	R_1=H	R_2=CO 	(3'*R*)-3'-hydroxy-columbianadin (**20**)		+
			angelicin(**21**)		+
			*p*-coumaric acid (**22**)	+	
			diosmetin(**23**)	+	+

IX

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皮膚・粘膜疾患

116 ～ 123

IX-1

△：成分未表示

116–1. 蕺菜(十藥) Houttuyniae Herba

**Houttuynia cordata* Thunb. [Saururaceae]

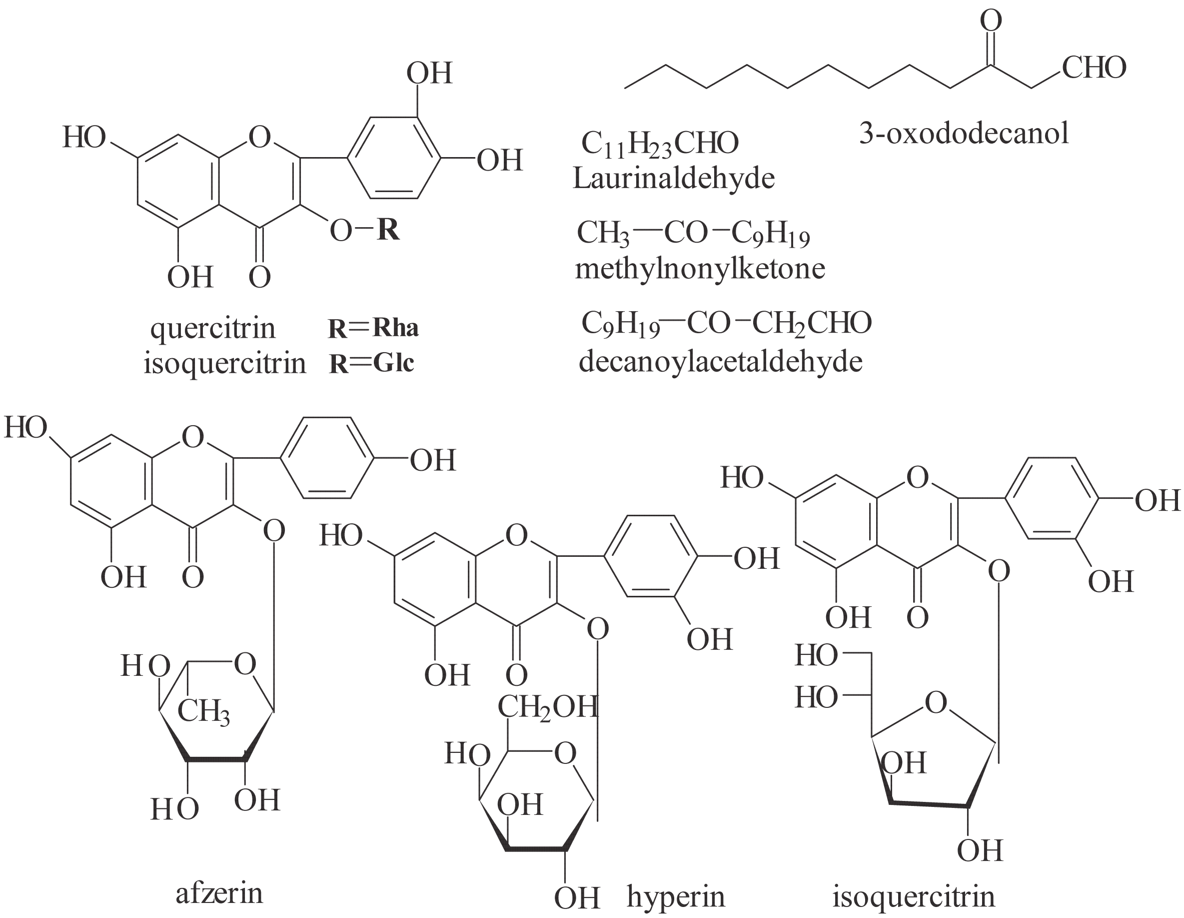
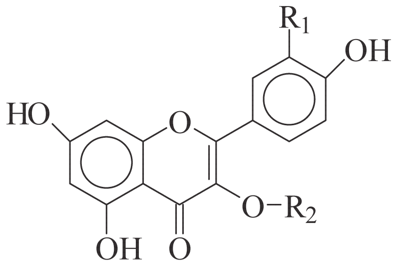


Fig. 1. Chemical structures of compounds

116-2. 戢菜(十藥) Houttuyniae Herba

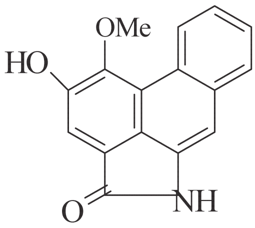
Houttuynia cordata Thunb. [Saururaceae]

J. Fuse, H. Kanamori, I. Sakamoto, S. Yahara: *Natural Medicines,* **48, 307-311(1994)

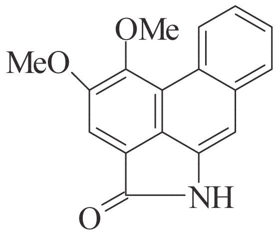


	R_1	R_2
(**1**) quercitrin	OH	Rha
(**2**) isoquercitrin	OH	Glc
(**3**) afzerin	H	Rha
(**4**) hyperin	OH	Gal
(**5**) rutin	OH	Glc^{1}-----^{6}Rha

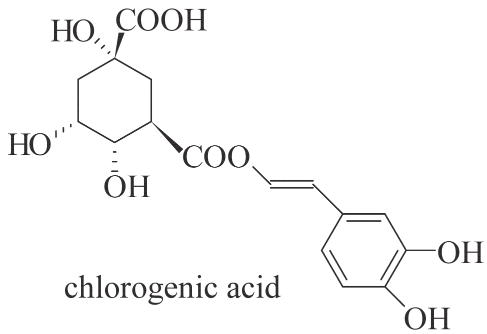
*** Jiang Meng et al.: *Chem. Pharm. Bull.* **53**(12), 1604-1609 (2005)



piperolactam



aristololactam B



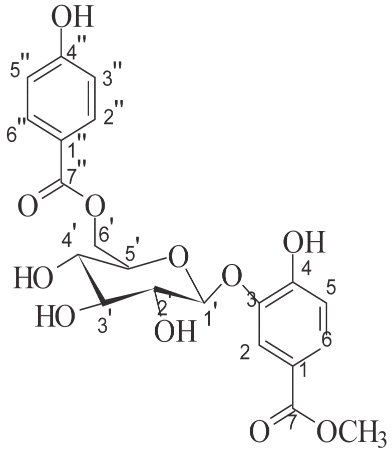
chlorogenic acid

Fig. 1. Chemical structures of compounds

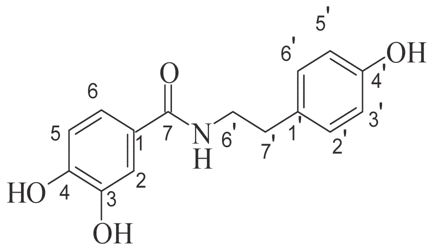
116-3. 蕺菜(十藥) Houttuyniae Herba

* *Houttuynia cordata* Thunb. [Saururaceae]

** Shu-Chen Chou, Chung-Ren Su, Yuh-Chi Ku, and Tian-Shung Wu: *Chem. Pharm. Bull.* **57**(11) 1227-1230 (2009)



1 Houttuynoside A



2 Houttuynamide A

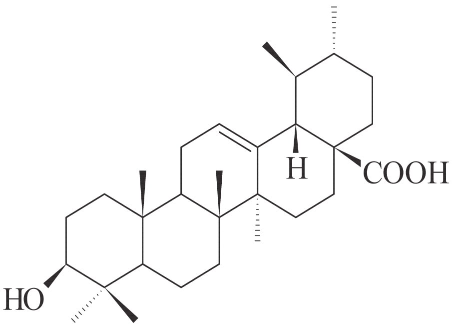
Fig. 1. Chemical structures of compounds

* **Two new** compounds: **houttuynoside A (1)** and **houttuynamide (A) (2).**

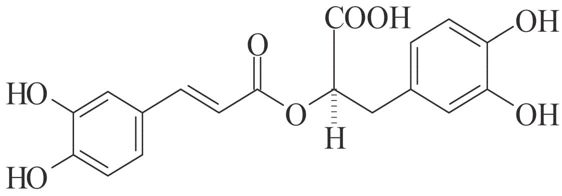
** **38 known** compounds were isolated: These compounds are **aristolactams 3-6** [aristolactam A II **(3)**, aristolactam B II (**4**), piperolactam A (**5**), and 3,4-dimethoxy-*N*-methyl aristolactam (**6**), ox **oxoaporphines 7 and 8** splendidine (**7**) and lysicamine (**8**)], **4,5-dioxoaporphines 9-11** [cepharadione B (**9**), norcepharadione B (**10**), and noraristolodione (**11**), **amides 12-18** [N-(1-hydroxymethyl-2-phenylethyl)benzamide (**12**), N-(4-hydroxyphenylethyi)benzamide **(13**), benzamide (**14**), 4-hydroxybenzamide (**15**), 4-hydroxy-3-methoxybenzamide (**16**), 6,7-dimethyl -1-ribitol-1-yl-1,4-dihydroquinoxaline-2,3-dione (17), and (1 *H*)-quinolinone (**18**), **indole 19** [indole-3-carboxylic acid (**19**), **ionones 20-24** [vomifoliol (**20**), dehydrovomifoliol (**21**), reseoside (**22**), 7-(3,5,6-trihydroxy-2,6,6-trimethylcyclohexyl)-byt-3-en-2-one (**23**), and 6-(9-hydroxy-but-7-ethyl)-1,1,5-trimethylcyclo-hexane-3,5,6-triol (**24**), **flavonoids 25-27** [quercitrin (25),quercetin-3-***O***-β−D-galactopyranoside (**26**), and afzelin (**27**), **benzenoids 28-37** [vanillic acid (**28**),methyl vanillate (**29**), vanillin (**30**), protocatechuic acid (**31**), 4-hydroxy-benzoic acid (**32**), methylparaben (**33**), *p*-hydroxybenzaldehyde (**34**), *cis* and *trans*-methyl ferulate (**35, 36**), and benzyl-β−D-glucopyranoside (**37**), **steroids 38** and **39** [β−sitosteryl glucoside (**38**) and β−sitosterol (**39**), as well as a **triterpenoid 40** [cycloart-25-ene-3β,24-diol (**40**)].

117-1. 夏枯草 Prunellae Spica

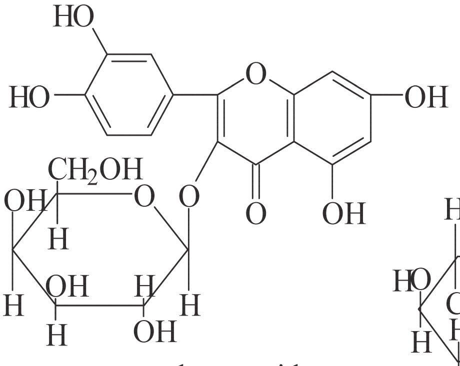
Prunella vulgaris Linn'e var. *lilacina* Nakai [Labiatae]



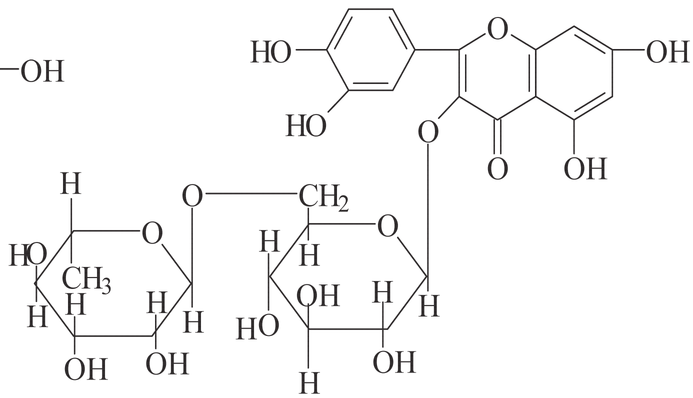
ursolic acid



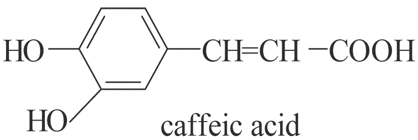
rosmarinic acid



hyperoside



rutin



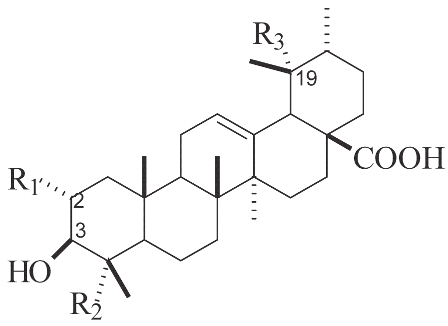
caffeic acid

Fig. 1. Chemical structures of compounds

117-2. 夏枯草 Prunellae Spica

* *Prunella vulgaris* L. [Labiatae]

** Gil-Saeng Jeong, Ren-Bo An, Hyun-Ock Pae, Gi-Su Oh, Hun-Taeg Chung, and Youn-Chul Kim: *Biol. Pharm. Bull.* **31**(3), 531-533 (2008)



1: R_1=R_3=H, R_2=CH_2OH
2: R_1=R_3=H, R_2=CH_3
3: R_1=R_3=OH, R_2=CH_3
4: R_1=OH, R_2=CH_3, R_3=H
5: R_1=H, R_2=CH_3, R_3=OH

Chart. 1. The Structures pf Compounds **1**--**5** from *Prunella vulgaris*

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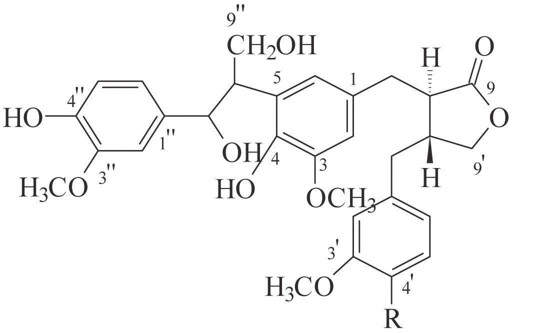
* Ursane-type triterpenes:
(**1**). 3β,23-dihydroxyurs-12-en-28-oic acid (23-hydroxyursolic acid)
(**2**). 3β−hydroxyurs-12-en-28-oic acid (ursolic acid)
(**3**). 2α,3β,19α−trihydroxyurs-12-en-28-oic acid (tormentic acid)
(**4**). 2α,3β−dihydroxyurs-12-en-28-oic acid (corosolic acid)
(**5**). 3β,19α−dihydroxyurs-12-en-28-oic acid (pomolic acid)

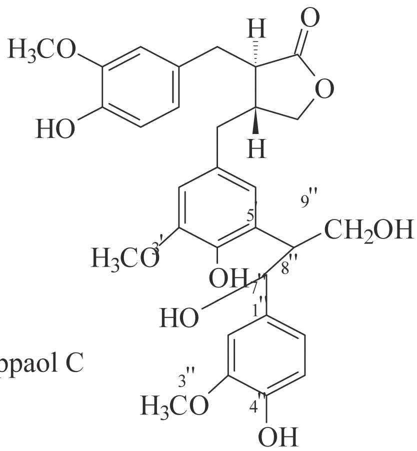
118. 牛蒡子 Arctii Fructus

* Lignans from *Arctium lappa* L. [Compositae]
and Their Inhibition of LPS-Induced Nitric Oxide Production

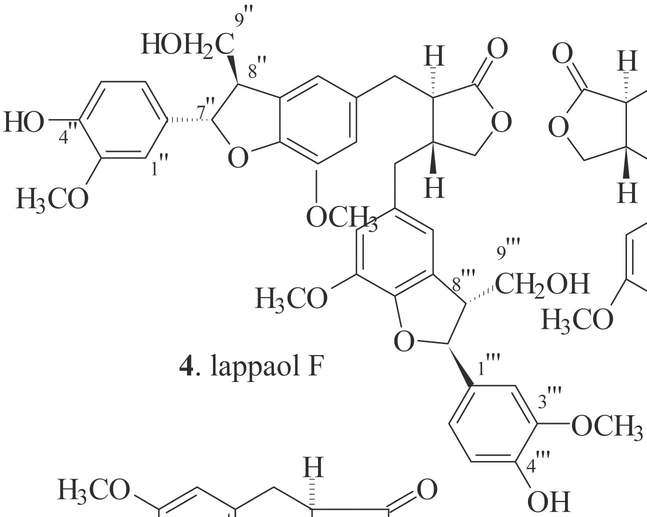
** So Young Park, Seong Su Hong, Xiang Hua Han, Ji Sang Hwang, Dongho Lee, Jai Seup Ro, and Bang Yeon Hwang:
Chem. Pharm. Bull. **55**(1), 150-152 (2007)



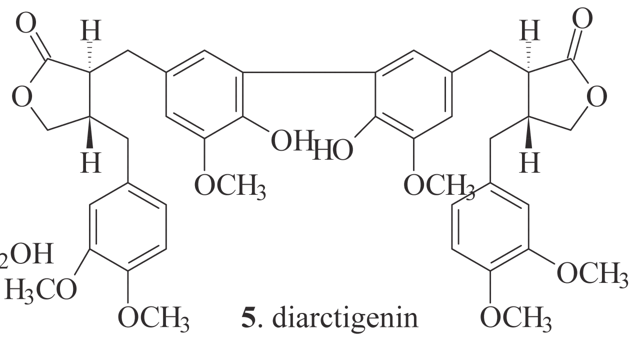
1. isolappaol C: R=OH
3. lappaol D: R=OCH_3



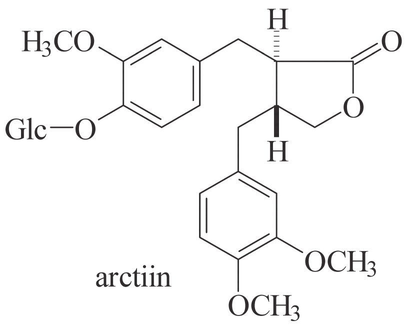
2. lappaol C



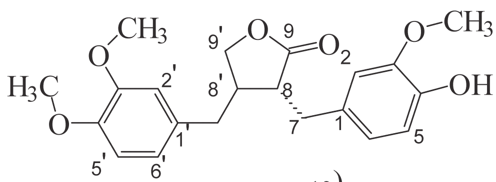
4. lappaol F



5. diarctigenin



arctiin

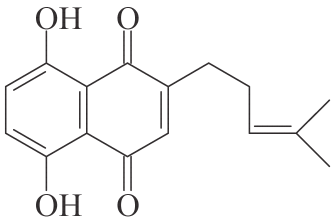


arctigenin[13)]

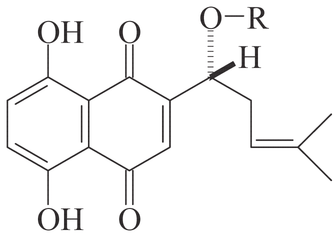
Fig. 1. Chemical structures of compounds

119-1. 紫根 Lithospermi Radix

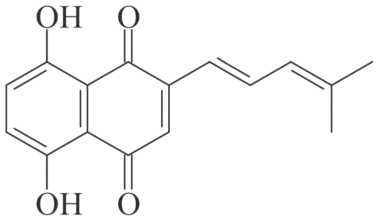
* *Lithospermum erythrorhizon* Sieb. et Zucc. [Boraginaceae]
L. *euchroma* Royle (=*Macrotomia euchroma* Pauls.)



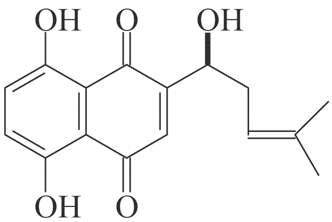
deoxyshikonin



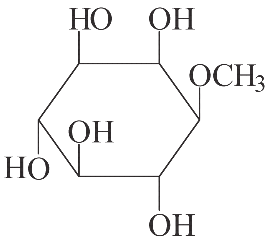
shikonin R=H
acetylshikonin R=Ac($COCH_3$)
isobutyroylshikonin R=$COCH(CH_3)_2$



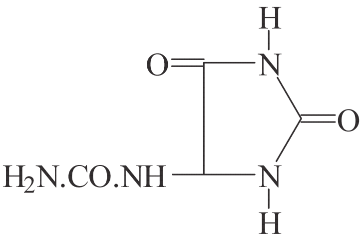
anhydroshikonin



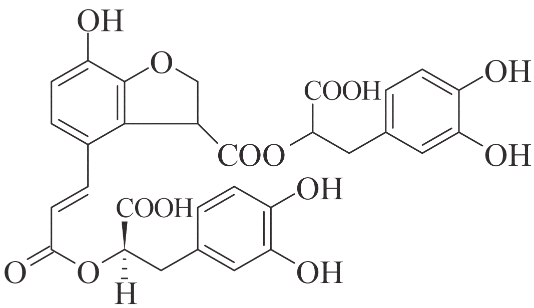
alkanin



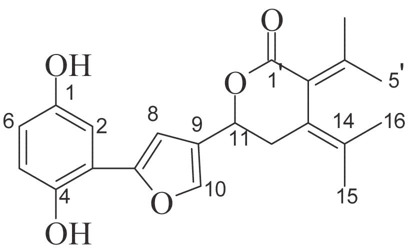
(-)-bomesitol



allantoin



lithospermic acid
* Ogihara Y, et al:
Natural Medicines, **54**(2) 81-85 (2000)



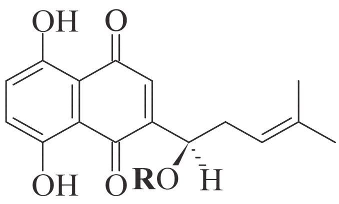
shikonofuran E
* Meguro S, et al ;
Natural Medicines, **55**(5), 265-267 (2001)

Fig.1. Chemical structures of compounds

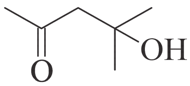
119-2. 紫根 Lithospermum Root

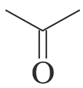
**Lithospermum erythrorhizon* Sieb. et Zucc. [Boraginaceae]

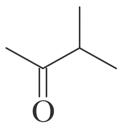
* * Y. Ogihara et al : *Natural Medicines,* **54**(2), 81-85 (2000)

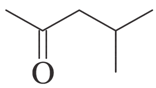


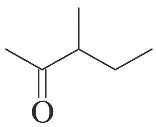
1: R=H shikonin

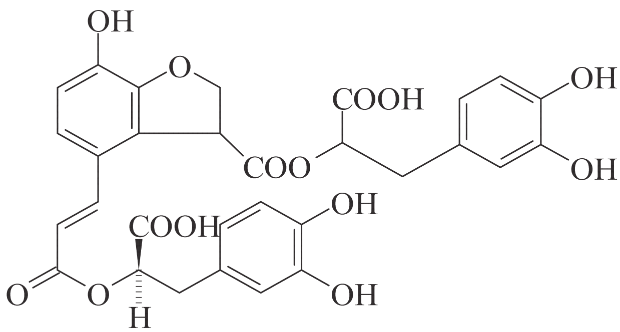
2: R=  β −hydroxyisovalerylshikonin

3: R=  acetylshikonin

4: R=  isobutylshikonin

5: R=  isovalerylshikonin

6: R=  α−methyl-*n*-butylshikonin



lithospermic acid

Fig. 1. Chemical structures of compounds **1--6**

119-3. 紫根 Lithospermi Radix

* *Lithospermum erythrorhizon* Sieb. et Hook. [Boraginaceae]

** S. Megumo, N. Kusunoki, M. Nagai, R. Yanoshita, and Y. Samejima: *Natural Medicines,* **55**(5), 265-267 (2001)

*** Inhibition of Lyso PAF Acetyltransferase by the Ingredients from Lithospermum Root

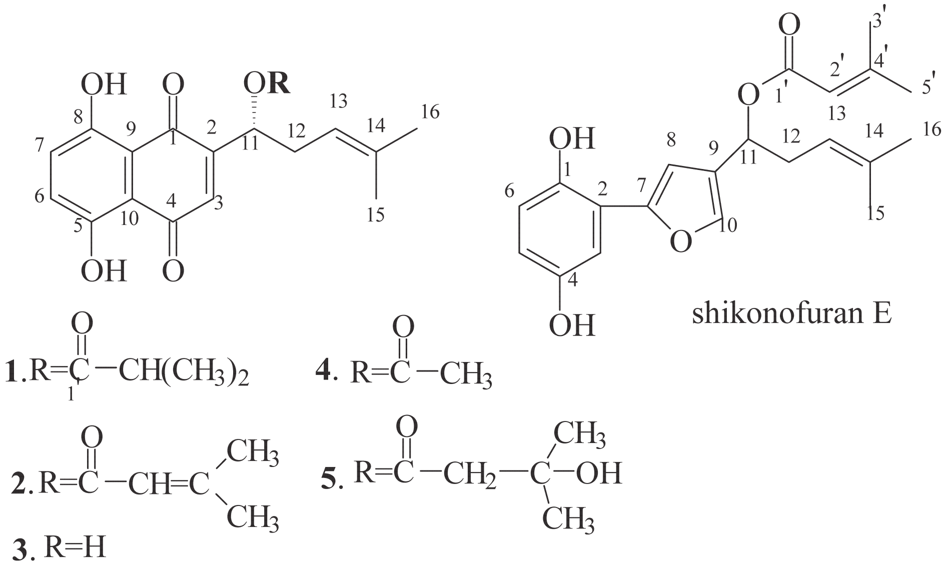


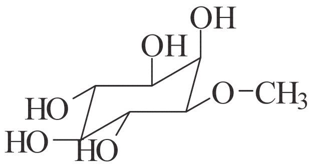
Fig. 1. Chemical structures of compounds **1**--**5**

***1**: isobutyrylshikonin
2: β, β−dimethylacrylshikonin
3: shikonin
4: acetylshikonin
5: β−hydroxyisovalerylshikonin

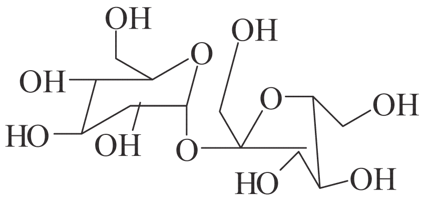
119-4. 紫根 Lithospermi Radix

* *Lithospermum erythrorhizon* Sieb. et Zucc. [Boraginaceae]

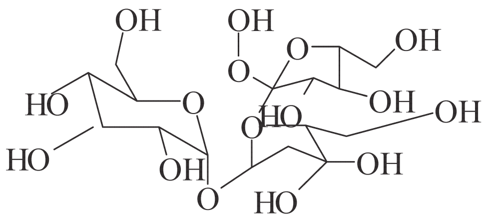
Y-H Moon, J-Y Cha, J-H Moon, K. Kawazoe, Y Takaishi and K-H Park: *Natural Medicines,* **58(3), 117 (2004)



1:D-(-)-bornesitol



2:sucrose



3:1-ketone

Fig. 1. Chemical structures of compounds **1**--**3**

119-5. 紫根 Lithospermi Radix

* Tigloylshikonin, a New Minor Shikonin Derivative, from the Roots and the Commercial Root Extract of *Lithospermum erythrorhizon* Siebold er Zuccarini [Boraginaceae]

** Yusai Ito, Kenichi Onobori, Takeshi Yamazaki, and Yoko Kawamura: *Chem. Pharm. Bull.* **59**(1) 117-119 (2011)

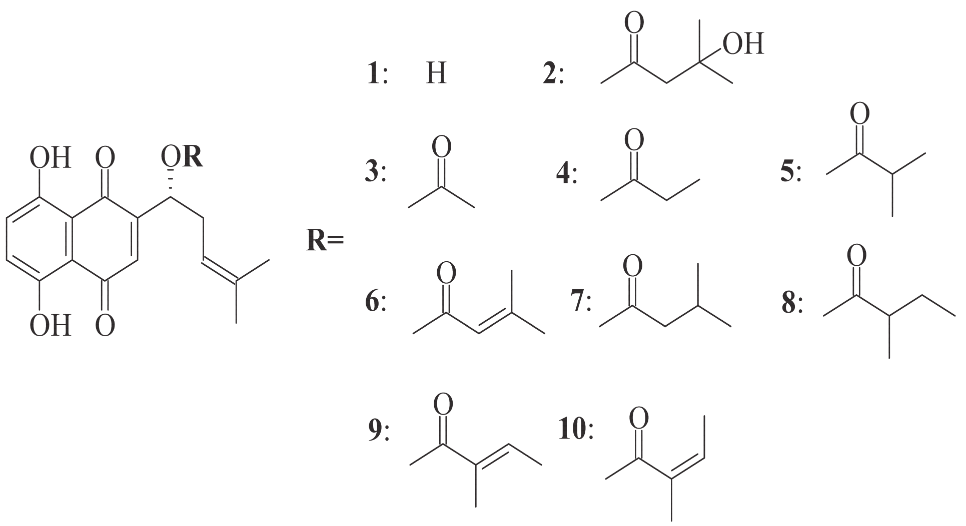


Fig. 1. The Structures of Shikonin (**1**) and Its Ester Derivatives (**2**--**10**)

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*The pigments were Naphthoquinone natural products, shikonin (**1**) and its ester derivatives. Various shikonin derivatives, such as those of β−hydroxyisovalerylshikonin (**2**), acetylshikonin (**3**), propionylshionin (**4**), isobutyrylshikonin (**5**), β,β−dimethylacryloylshikonin (**6**), isovarerylshikonin (**7**), and α−methylbutyrylshikonin (**8**). angeloylshikonin (**10**)
We found a new shikonin derivative , **tigloylshikonin** (**9**), as a minor pigment.

** In the past , angeloylshikonin (**10**), a geometrical isomer of tigloylshikonin (**9**), was reported as a major pigment from the roots of *Alkanna hirsutissima* collected in northern Iraq. As the optical isomer of **10**, angeloylalkannin was also reported from the roots of *Alkanna tinctoria,* a common source of alkannin derivatives.

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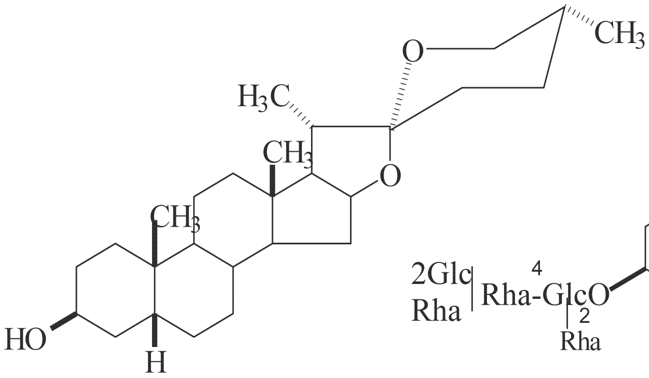
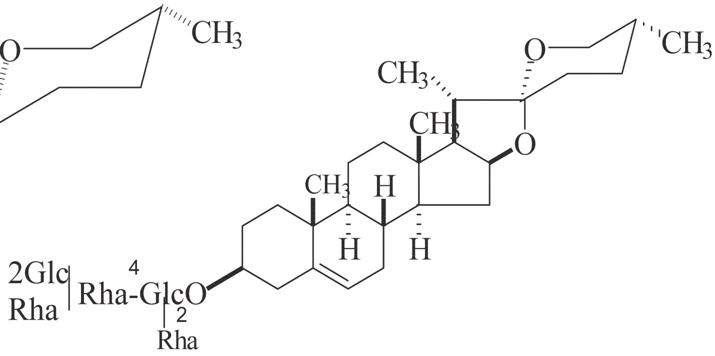
120. 土茯苓 Smilacis Glabrae Rhizoma

* *Smilax glabra* L. [Liliaceae]

** Smilax saponin A-D



smilagenin

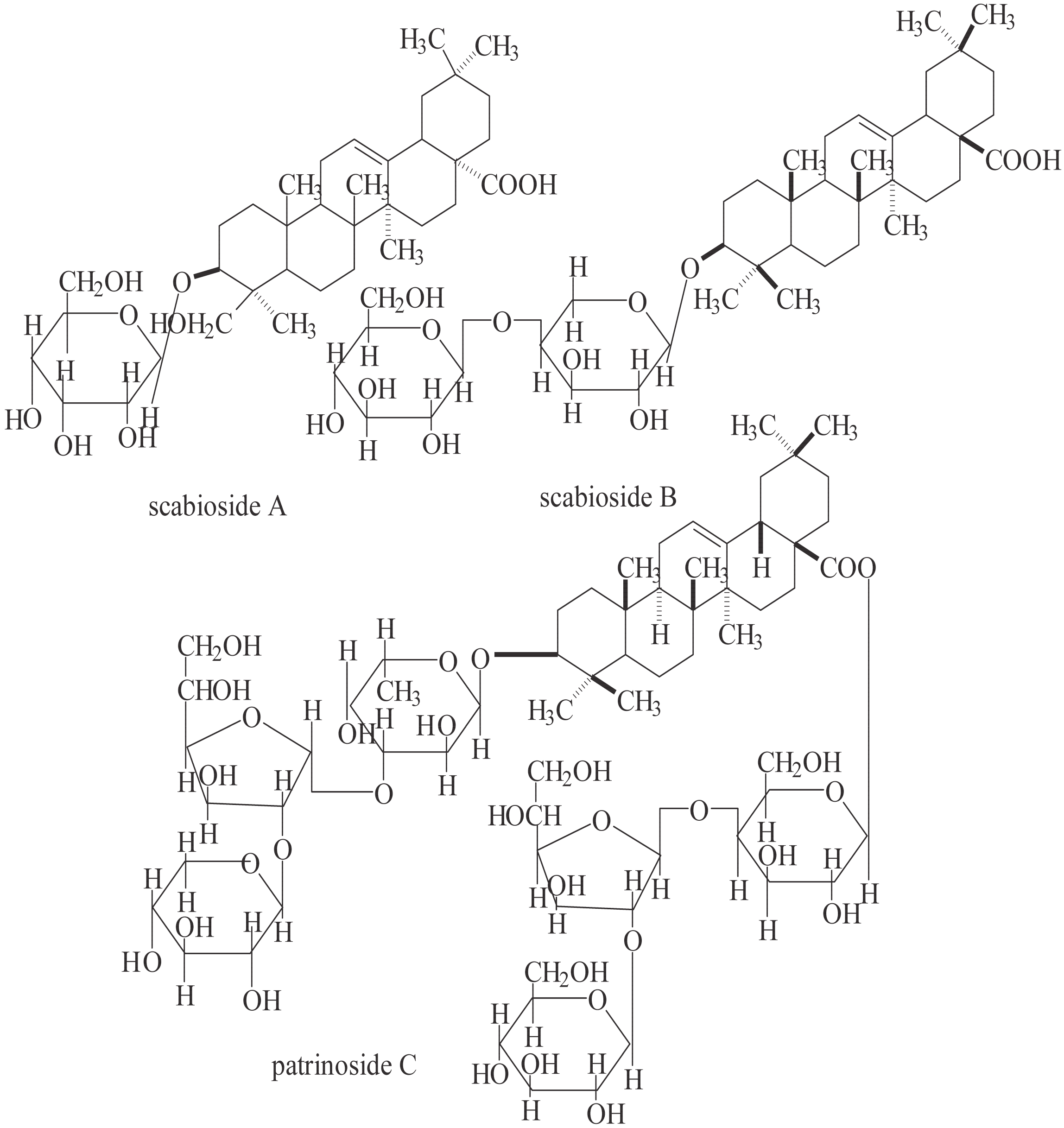


smilaxsaponin B

Fig. 1. Chemical structures of compounds

121-1. 敗醬 Patriniae Rhizoma et Radix

* *Patrinia scabiosaefolia* Fisch. [Valerianaceae]



scabioside A

scabioside B

patrinoside C

Fig. 1. Chemical structures of compounds

121-2. 敗醬 Patriniae Rhizoma et Radix

**Patrinia villosa* Juss [Valerianaceae]

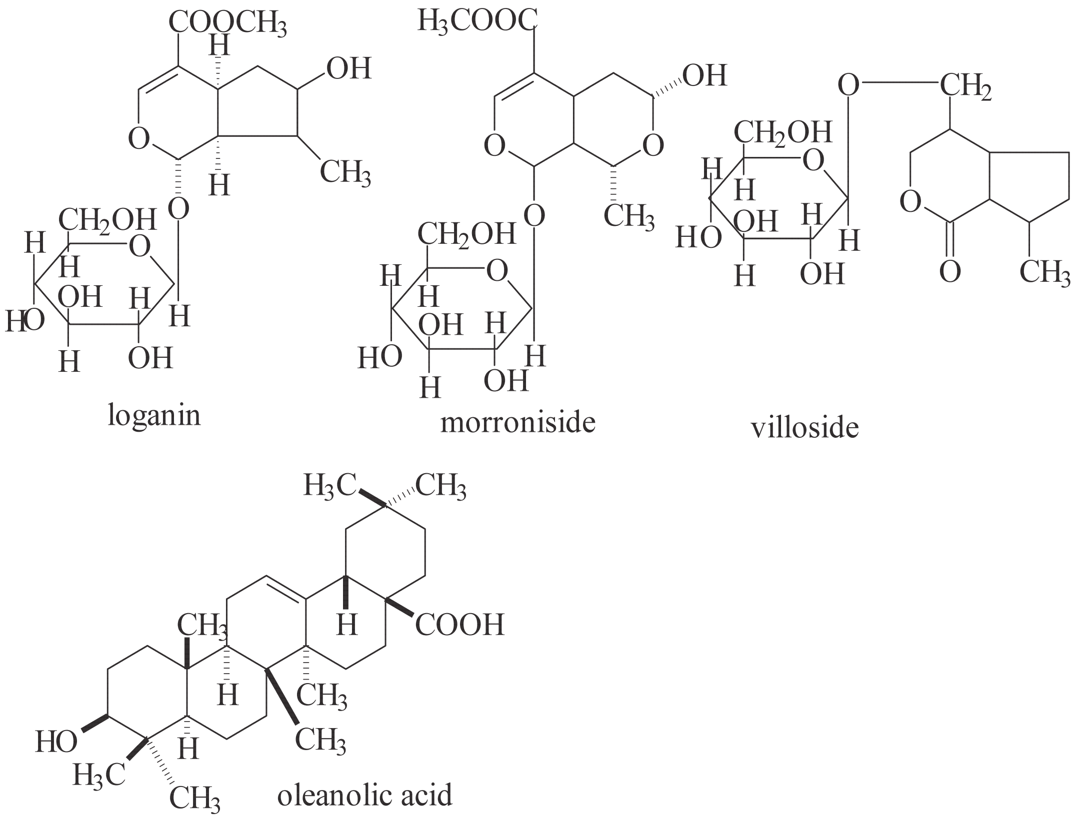


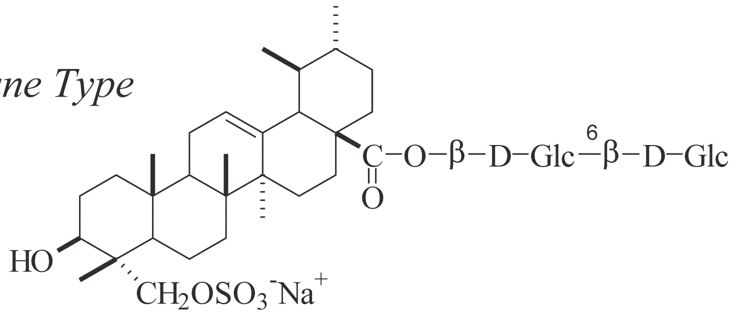
Fig. 1. Chemical structures of compounds

121-3. 敗醬 Patriniae Semen (種子)

* *Patrinia scabiosaefolia* Fisch. [Valerianaceae]

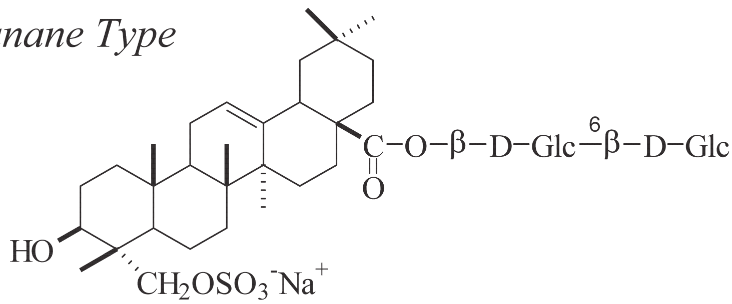
** Inada A., Yamada M., Murata H., Kobayashi M., Toya H., Kato Y., Nakanishi T.: *Chem. Pharm. Bull.* **36**, 4269-4274 (1988)

Ursane Type



sulfapatrioside I

Oleanane Type

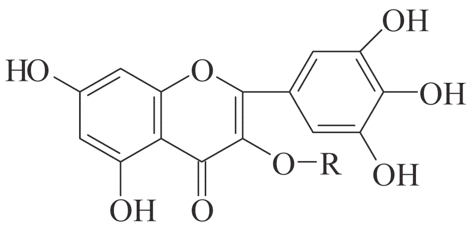


sulfapatrioside II

Fig. 1. Chemical structures of compounds

123. 楊梅皮 Myricae Cortex

* *Myrica rubra* Sieb. et Zucc. [Myricaceae]

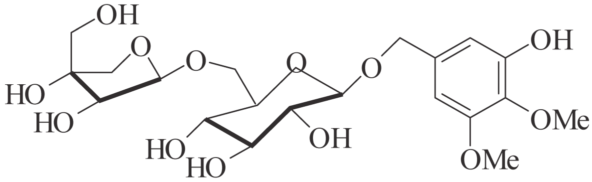


myricetin R=H
myricitrin R=Rha

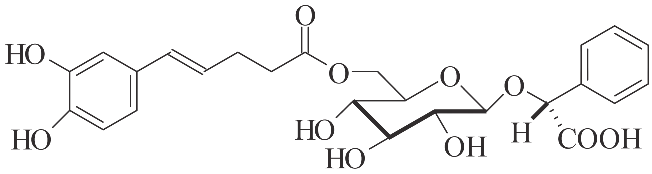
IX-1. 樱皮 Study of the chemical constituents of Pruni Cortex

* *Prunus jamasakura* Sieb. ex Koidz., *P. yedoensis* [Rosaceae]

** Nanae Matsuoka, Tsuyoshi Ikeda, Mona EI-Aasr, Hideyuki Manabe, Yoshihiro Murakami, Hiroya Deguchi, Toshihiro Nohara:
J Nat Med **65**(1) 166-171 (2011)



PCW-12



PFL-15

Fig. 1. Structures of PCW-12 and PFL-15

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* PCW-12: 6'-***O***-β–D-apiofuranosyl-(1-6)-nikoenoside, named as apionekoenoside.
PFL- 15: mandelic acid 6-***O***-(*E*)-caffeoyl β–D-glucopyranoside.

* PCW-1-PCW-11 were identified as neosakuranin, sakuranin, dihydrodehydroconiferyl alcohol 4'-***O***-β–D-glucopyranoside, shizandriside, lyoniside, nudiposide, pleoside, icariside D1, 4-hydroxybenzenemethanol, picraqussioside D, and nikoenoside.

* PFL- 7 and PFL-1 were idenfified as (*E*)-caffeic acid and its methyl ester.
PEL-17 and PFL-6 were identified as (*E*)-*p*-coumaric acid methyl etyer and (*E*)-*p*-coumaric acid 1-***O***-β–D-glucopyranosyl ester.
PFL-12 and PFL-5 were identified as β–sitosterol and stigmast-5-ene 3-***O***-β–D-gluco-glucopyranoside .
PFL-8 and PFL-13 were identified as prunasin and amygdalin, respactively.
PFL-4 and PFL-10 were identified as mandelic acid β–D-glucopyranoside and its methyl ester.PFL-11 was identified as 10-hydroxydecanoic acid 10-***O***-β–D-glucopyranoside.

---

* PCM -2, PCM-15, and PCM-7 were identified as the three aromatics: benzoic acid β–D--glucopyranoside, vanillyl alcohol 4-***O***-β–D-glucopyranoside, and nikoenoside.
* PCM-3: Lignan: nudiposide. PCM-10: Sterol: stigmast-5-ene 3-***O***-β–D-glucopyranoside.
* PCM-1,-4,-5,-6-,-8,-9,-11,-12,-13 and 14: Ten Flavonoids: sakuranin, (-)-catechin, (2*R*,3*R*)-3,5,7,3',5'-pentahydroxtflavan, prunin, neosakuranin, (2*S*)-5,7,3',5'-tetrahydroxyflavanone-7-***O***-β–D-glucopyranoside, genkwanin, 7-***O***-methyl-dihydrokaempferol, sakuranetin and naringenin respectively.

X
・抗菌・驅蟲類

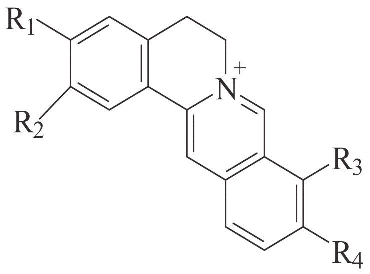
116 ～ 123

X-1 ～ X-3

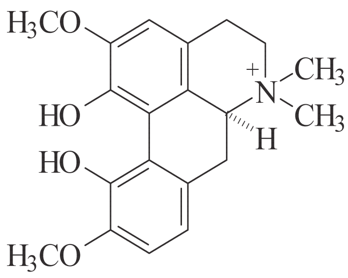
△：成分未表示

124. 黄連 Coptidis Rhizoma

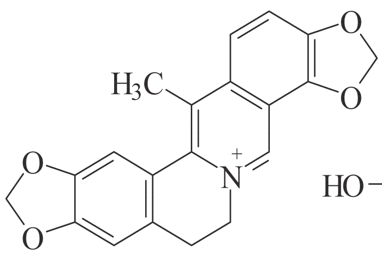
* *Coptis chinensis* Franch. (China) [Ranunculaceae]
C. japonica Makino (Japan)



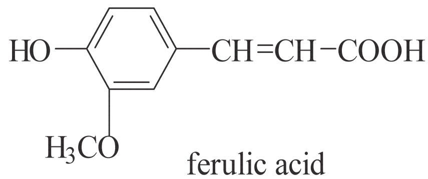
	R1	**R2**	**R3**	**R4**
berberine :	—O–CH$_2$–O—		OCH$_3$	OCH$_3$
coptisine :	—O–CH$_2$–O—		—O–CH$_2$–O—	
palmatine :	OCH$_3$	OCH$_3$	OCH$_3$	OCH$_3$
jateorrhizine :	OH	OCH$_3$	OCH$_3$	OCH$_3$



magnoflorine



worenine



ferulic acid

Fig. 1. Chemical structures of compounds

125-1. 黄柏 Phellodendri Cortex

* *Phellodendron amurense* Ruprecht [Rutaceae]
P. *chinense* Schneid.

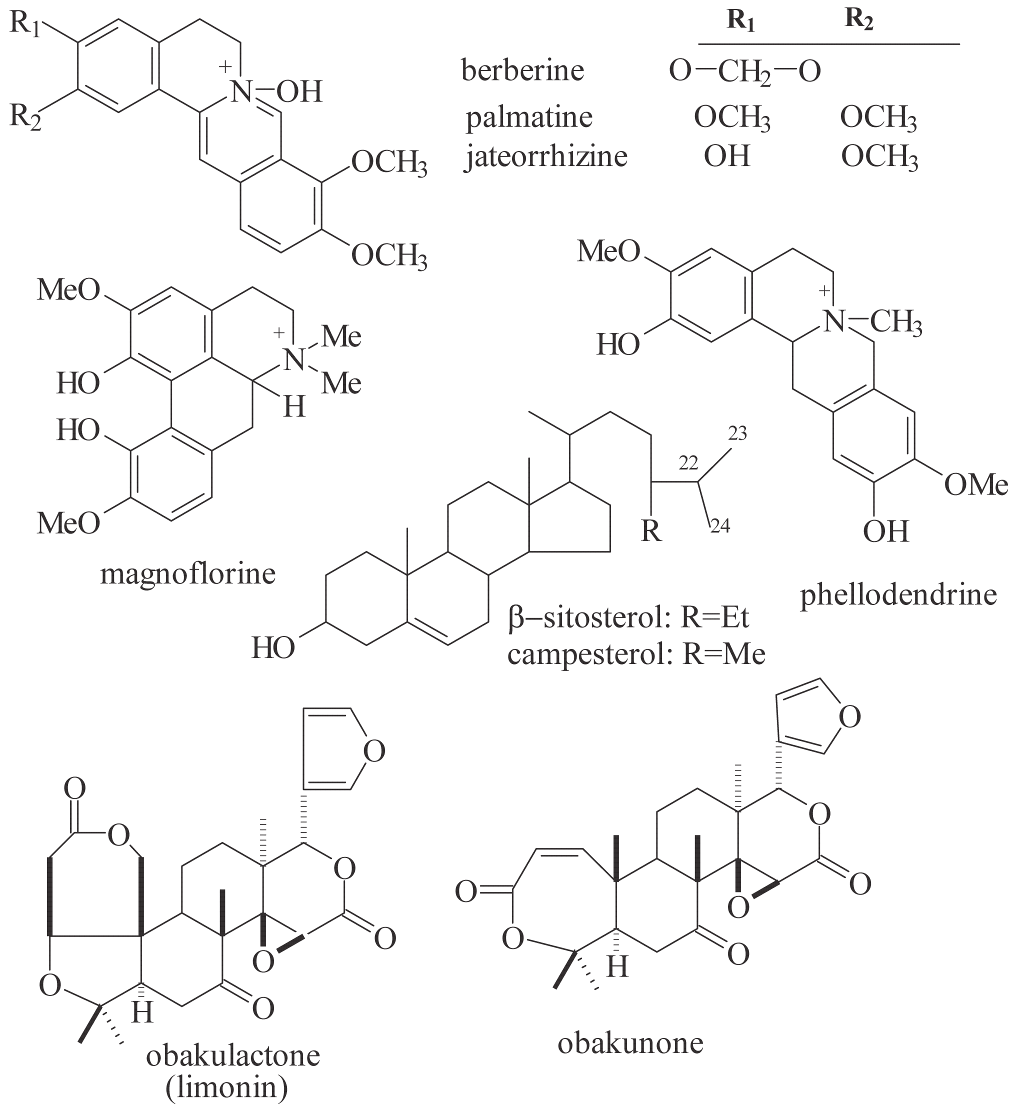


Fig. 1. Chemical structures of compounds

125-2. 黃柏葉 Constituents from the Leaves of *Phellodendron amurense* Ruprecht [Rutaceae] and Their Antioxidant Activity

* Chien-Hsing Leu, Chia-Ying Li, Xinsheng Yao, and Tian-Shung Wu:
Chem. Pharm. Bull. **54**(9), 1308-1311 (2006)

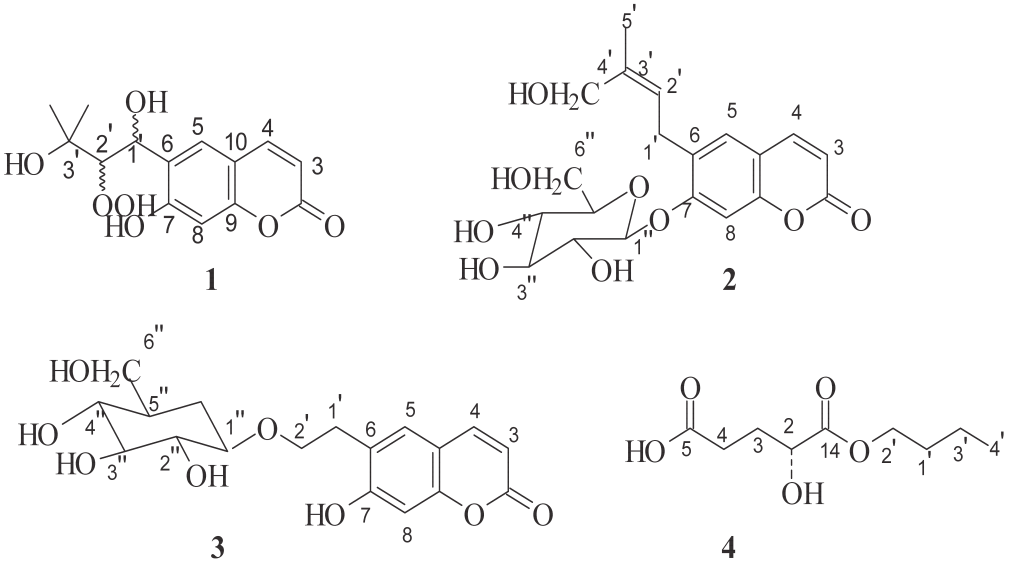


Fig. 1. Chemical structures of compounds **1**--**4**

*** New Compounds:**

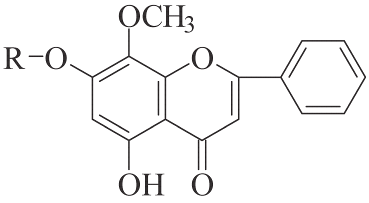
1. phellodenol F; **2**. phellodenol G; **3**. phellodenol H and **4**. phellodendric acid-A.

***Known Compounds:**

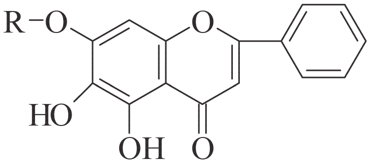
5. amurensin ; **6**. phellamurin ; **7**. kaempferol ; **8**. kaenpferol-3-*O*-β–D-glucoside ; **9**. kaempferol-3-*O*-β–D-galactoside ; **10**. quercetin ; **11**. quercetin-3-*O*-β–D-glucoside : **12**. quercetin-3-*O*-β–D-galactoside ; **13**. flavaprenin 7,4'-diglucoside ; **14**. hexandraside E ; **15**. umbelliferon ; **16**. esculetin ; **17**. phellodenol A ; **18**. scopoletin ; **19**.demethylsuberosin **20**. 7-hydroxy-6-(2-hydroxy-3-methyl-3-butenyl) coumarin ; **21**. scoparone ; **22**. xanthyletin ; **23**. skimmin ; **24**. p-hydroxybenzaldehyde ; **25**. methylparaben ; **26**. p-hydroxybenzoic acid ; **27**. anisaldehyde ; **28**. methyl p-anisate ; **29**. sodium (2*R*)-3-phenyllactate ; **30**. methyl caffeate ; **31**. ferulic acid ; **32**. lupenone ; **33**. 2-acetyl-5-methoxyfuran.

126-1. 黃芩 Scutellariae Radix

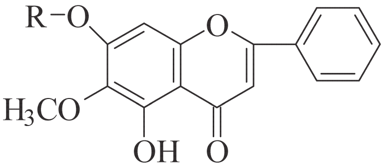
* *Scutellaria baicalensis* Georgi [Labiatae]



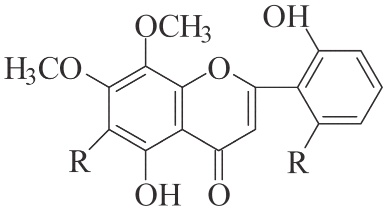
wogonin : R=H
wogonin glucuronide : R=GlcA



baicalein : R=H
baicalin : R=GlcA



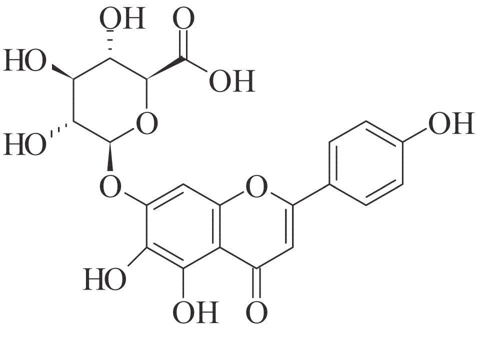
oroxylin-A : R=H
oroxylin-A glucuronide : R=GlcA



	R
skullcapflavone I :	H
skullcapflavone II :	OCH_3

---

* Scutellarin Isolated from *Erigeron multiradiatus* (Lindl.) Benth.
Pei Luo, Zheng-Huai Tan, Zhi-Feng Zhang, Hao Zhang, Xian-Fu Liu, and Zheng-Ji Mo: *YAKUGAKU ZASSHI,* **128**(9), 1293-1299 (2008) 36)



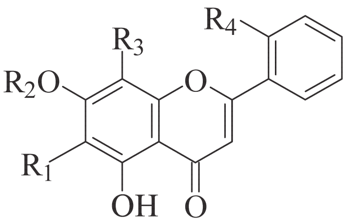
scutellarin

126-2-1. 黃芩 Scutellariae Radix

* *Scutellaria baicalensis* Georgi [Labiatae]

** Y. Miyaichi, T. Tomimori : *Natural Medicines,* **48**(3), 215-219 (1994)

*** Flavone glycosides:



: R_1=glc, R_2=R_3=R_4=H

: R_3=glc, R_1=R_2=R_4=H

3 : R_2=gluA, R_1=OMe, R_4=OH, R_3=H

* glc: β–D-glucopyranosyl

glu A: β–D-glucuronopyranosyl

---

* . chrysin 6-*C*-β–D-glucopyranoside

2. chrysin 8-*C*-β–D-glucopyranoside

3. 5, 7, 2'-trihydroxy-6-methoxy-flavone 7-*O*-β–D-glucuronopyranoside

4. chrysin 7-*O*-β–D-glucuronopyranoside

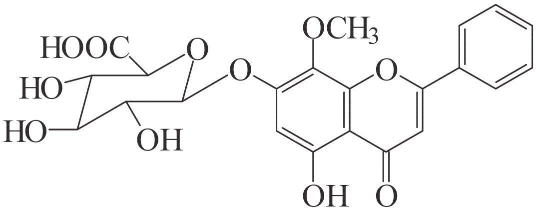
5. leucosceptoside A

6. acteoside

7. isomartynoside

8. (+)-syringaresinol-*O*-β–D-glucopyranoside (Lignan)

[Flavonoid: 41, Phenylethanolide (martynoside), Amino acid : 14, Sterol: 3, Essential oil compound: 81, Sugar: 2]

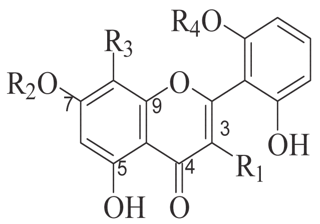


wogonoside

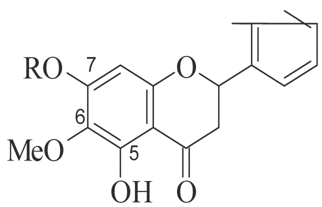
[Akihinro Daikonya, Nobuo Kawahara et al: *Shoyakugaku Zasshi* **67**(2) 35-40 (2013)

126-2-2. 黃芩 Scutellariae Radix

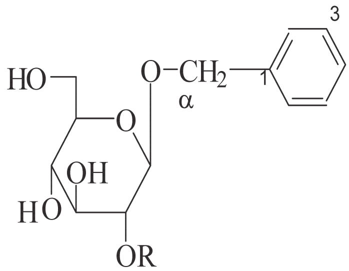
* *Scutellaria baicalensis* Georgi [Labiatae]
** Y. Miyaichi, T. Tomimori : *Natural Medicines,* **49**(3), 350-353 (1995)



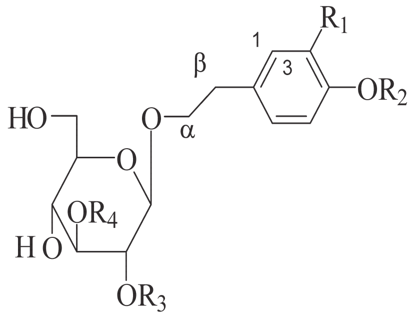
1: R_1=H, R_2=Me, R_3=OMe, R_4=β–D-glucopyranosyl
2: R_2=R_3=H, R_1=OH, R_4=β–D-glucopyranosyl
1: (5, 2', 6'-trihydroxy-7, 8-dimethoxyflavone-2'-***O***-β–D-glucopyranoside)
2: (3, 5, 7, 2', 6'-pentahydroxyflavone-2'-***O***-β–D-glucopyranoside)



: [(2*S*)-5, 7-dihydroxy 6-methoxyflavanone-7-***O***-β–D-glucopyranoside]
R=β–D-glucopyranosyl



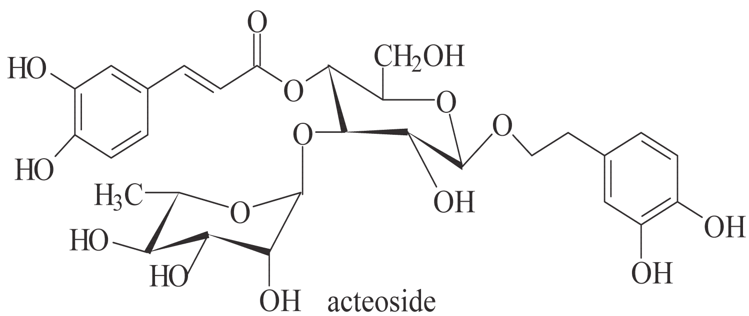
4: (Benzyl-***O***-β–D-apinofuranosyl-(1→2)-β–D-glucopyranoside)
R=β–D-apiofuranosyl



.R_1=R_2=R_3=R_4=H
6: R_1=R_2=R_4=H, R_3=β–D-apiofuranosyl
7: R_3=H, R_1=OH, R_2=Me, R_4=α–L-rhamno pyranosyl

---

* *Scutellaria baicalensis* Georgi: [Labiatae]
Tani T, et al : *Chem. Pharm. Bull.* **50**(7), 896-899 (2002)



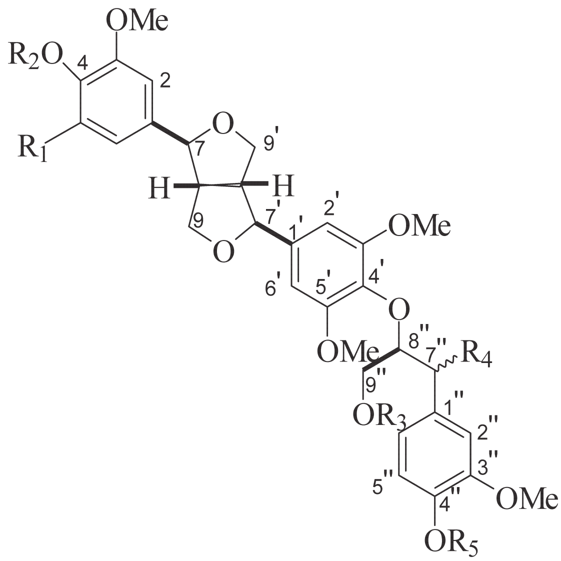
acteoside

126-2-3. 黃芩 Scutellariae Radix

＊*Scutellaria baicalensis* Georgi [Labiatae]

** Y. Miyaichi, T. Tomimori : *Natural Medicines,* **52**(1), 82-86 (1998)

*** Sesquilignan glycoside:



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1. [hedyotol-C 4''-***O***-β–D-glucopyranoside (*erythro*-guaiacylglycerol-β–medioredinol -ether 4 ''-***O***-β–D-glucopyranoside)]

R_1=R_2=R3=H, R_4= β– OH, R_5=β -D–glucopyranose

2. [hedyotol- D 4''-***O***-β–D-glucopyranoside (*threo*-guaiacylglycerol-β–D-medioredinol -ether 4''-***O***-β–D-glucopyranoside)]

R_1=R_2=R_3=H, R_4=α-OH, R_5=β–D–glucopyranose

3. (*Erythro*-guaiacylglycerol-β–syringaresinol ether 4''-***O***-β–D-glucopyranoside)

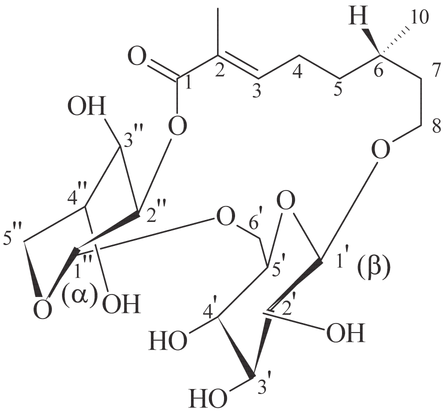
R_1=OMe, R_2=R_3=H, R_4=β–OH, R_5=β–D–glucopyranose

127-1-1. 金銀花 Lonicerae Flos

* *Lonicera japonica* Thunberg. [Caprifoliaceae]

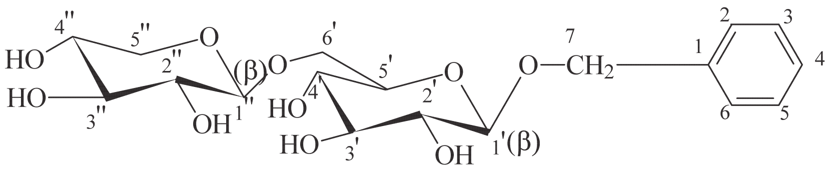
** Kikuchi M, et al : *Natural Medicines,* **54**(6), 314-317 (2000)

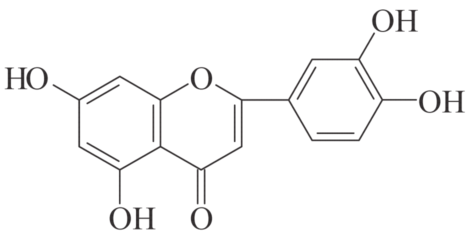
***Flower buds:



(**1**) (2*E*, 6*S*)-8-[α–L-arabinopyranosyl-(1'' → 6')-β–D-glucopyranosyl]-2, 6-dimethyloct-2-eno-1, 2''-lactone

(**4**) benzyl alcohol β–D-xylopyranosyl-(1'' → 6')-β–D-glucopyranoside





luteolin

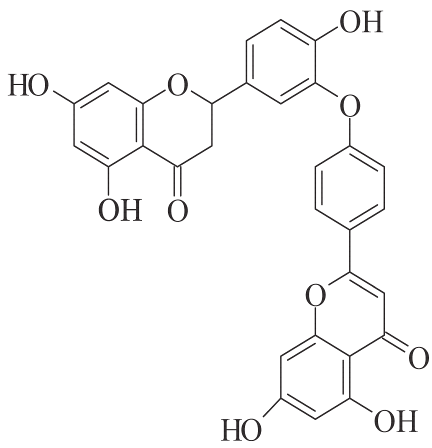
Fig. 1. Chemical structures of compounds

127-1-2. 金銀花 Lonicerae Flos

* *Lonicera japonica* Thunberg. [Caprifoliaceae]

** Moon T-C, Hwang H-S, Quan Z, Son K-H, Kim C-H, Kim H-P, Kang S-S, Son J-K, Chang H-W: *Biol. Pharm. Bull.* **29**(12), 2359-2361 (2006)

*** Ochnaflavone:Biflavonoid, Inhibits Phospholipase A 2 Dependent Phosphatidylethanolamine Degradation in a CCl_4-Induced Rat liver Microsome



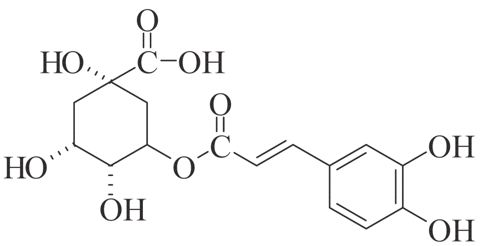
Ochnaflavone

127-1-3. 金銀花 Lonicerae (Japonicae) Flos

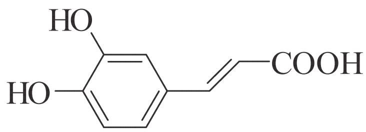
**Lonicera japonica* Thunb. [Caprifoliaceae]

** Analysis of Interaction Property of Bioactive Components in Flos Lonicerae Japonicae with Protein by Microdialysis Coupled with HPLC-DAD-MS

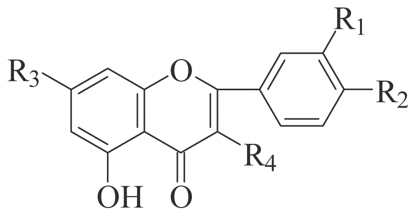
*** Zheng-Ming Qian, Xiao-Dong Wen, Hui-Jun Li, Ying Liu, Su-Juan Qin, and Ping Li:
Biol. Pharm. Bull. **31**(1), 126-130 (2008)



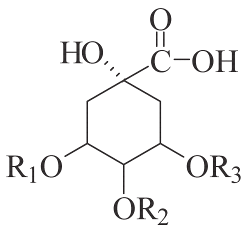
chlorogenic acid (**1**)

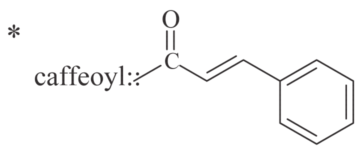


caffeic acid (**3**)



rutin (**4**): R_1=OH, R_2=OH, R_3=OH, R_4=Glu(6-1)Rha
quercetin-3-***O***-glucoside, (**5**): R_1=OH, R_2=OH, R_3=OH, R_4=Glu
luteolin-7-***O***-glucoside, (**6**): R_1=OH, R_2=OH, R_3=Glu, R_4=H,
lonicerin (**7**): R_1=OH, R_2=OH, R_3=Rha(1-2)Glu, R_4=H





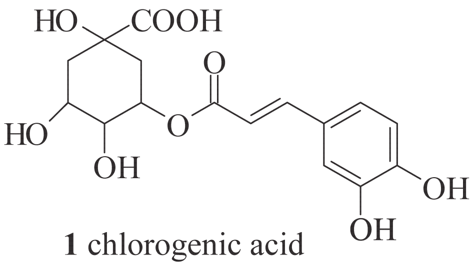
4,5-di-O-caffeoyl quinic acid (**9**): R_1=H, R_2=caffeoyl, R_3=caffeoyl
3,4-di-O-caffeoyl quinic acid (**10**): R_1=caffeoyl, R_2=caffeoyl, R_3=H

Fig. 1. Chemical Structures of Lonicerae Japonicae Flos

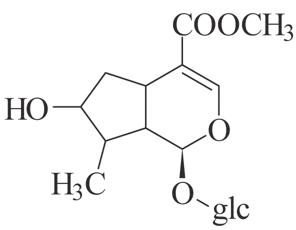
127-1-4. 金銀花 Lonicerae Flos

* Allergy-Preventive Effects of Chlorogenic Acid and Iridoid Derivatives from Flower Buds of *Lonicera japonica* Thunb. [Caprifoliaceae]

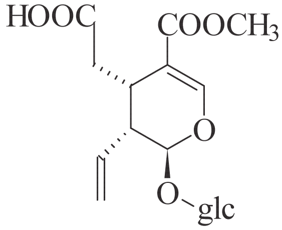
** Hisae Oku, Yuko Ogawa, Emiko Iwaoka, and Kyoko Ishiguro: *Biol. Pharm. Bull.* **34**(8) 1330-1333 (2011)



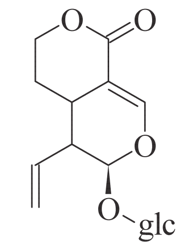
1 chlorogenic acid



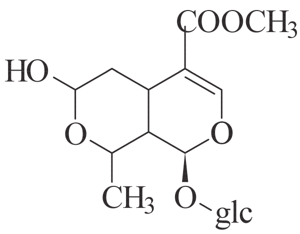
2 loganin



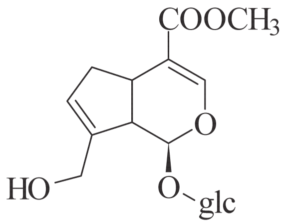
3 secoxyloganin



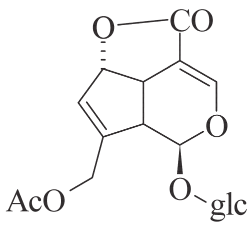
4 sweroside



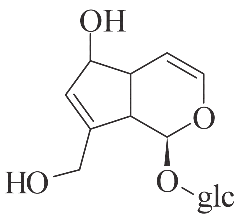
5 morroniside



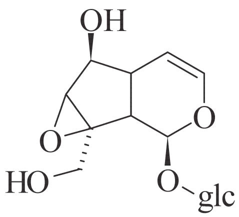
6 geniposide



7 asperuloside



8 aucubin



9 catalpol

Chart 1. Chlorogenic acid and Iridoid Derivatives from Flower Buds of *Lonicera japonica* Thunb. [Caprifoliaceae]

127-2-1. 忍冬 New Iridoid Glycosides of the Stems and Leaves of *Lonicera japonica* Thunb. [Caprifoliaceae]

* Koichi Machida, Hiromi Sasaki, Takeyoshi Iijima, and Masao Kikuchi,
Chem. Pharm. Bull. **50**(8), 1041-1044 (2002)

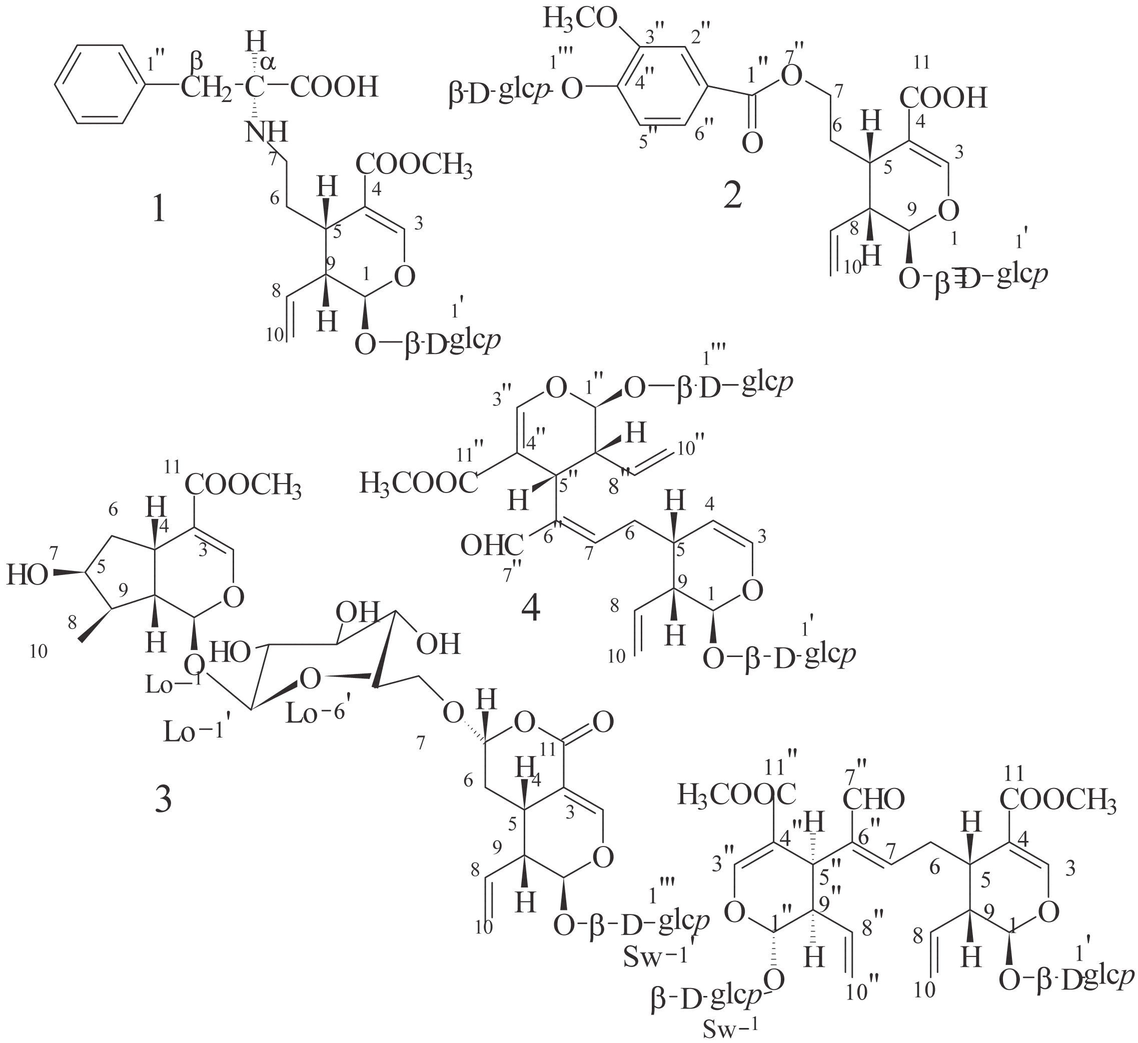
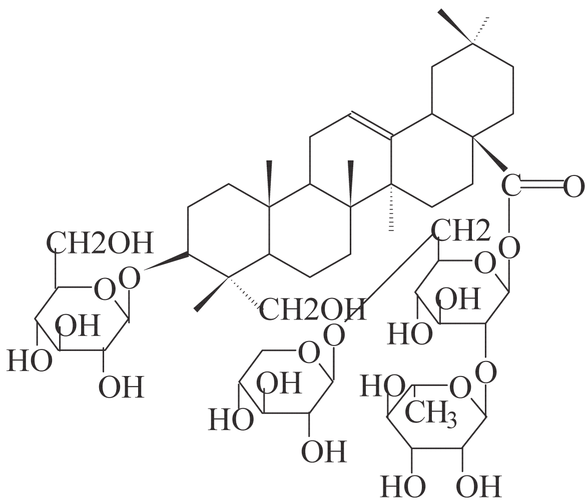


Fig. 1. Chemical structures of compounds

* **(1)** : L-phenylalaninosecologanin
(2) : 7-***O***-(4-β–D-glucopyranosyloxy-3-methoxy-benzoyl)secologanolic acid
(3) : 6'-***O***-(7α–hydroxyswerosyloxy)loganin
(4) : (***E***)-aldosecologanin
(5) : (***Z***)-aldosecologanin

127-2-2. 忍冬 Loniceroside C, and Antiinflammatory Saponin from *Lonicera japonica* Thunb. [Caprifoliaceae]

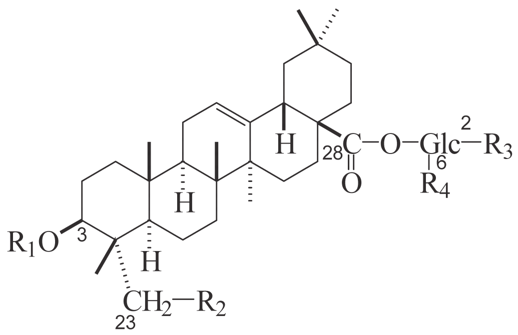
* Wie Jong Kwak, et at: *Chem Pharm Bull*. **51**(3), 333-335 (2003)



Loniceroside C

127-2-3. 忍冬 Triterpene Glycosides from the Stems and Leaves of *Lonicera japonicus* Thjunberg. [Caprifoliaceae]-1

* Minpei Kuroda, Takaaki Shizume, and Yoshihiro Mimaki:
Chem. Pharm. Bull. **62** (1) 92-96 (2014)



	R_1	R_2	R_3	R_4
1	Glc	OH	Rha	Glc
2	Glc	OH	Rha	S_3
3	Glc	OH	Rha	S_4
4	Ara	OH	Rha	S_5
5	S_1	H	Rha	Xyl
6	Ara	OH	Rha	Xyl
7	S_2	OH	Rha	Xyl
8	Glc	OH	Rha	Xyl
9	Glc	OH	Glc	Xyl
10	Glc	H	Rha	Xyl

S_1: Rha$\overset{1\ 2}{--}$Glc--
S_2: Rha$\overset{1\ 2}{--}$Ara--
S_3: Ac$\overset{3}{--}$Xyl--
S_4: Ac$\overset{3}{--}$Xyl--

Glc: β–D-glucopyranosyl
Ara: α–L-arabinopyranosyl
Rha: α–L-rhamnopyranosyl
Xyl: β–D-xylopyranosyl
Ac: acetyl

Fig. 1. The Structures of **1-10**

* Five new Triterpene glycosides, namely **Lonicerosides F-J** (**1-5**), together with five known ones, were isolated from the stems and leaves of *Lonicera japonica.*
* New Compounds: **lonicerosides F-J** (**1-5**):
3β–[(β–D-glucopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid *O*-β–D-glucopyranosyl (1-6)-[α-L-rhamnopyranosyl-(1-2)]-β–D-glucopyranosyl ester **(Loniceroside F)**, 3β–[(β–D-glucopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid *O*-(3-*O*-acetyl-β–D-xylopyranosyl)-(1-6)-[α–L-rhamnopyranosyl-(1-2)]-β–D-glucopyranosyl ester (**loniceroside G**), 3β–[(β–D-glucopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid *O*-(3-*O*-acetyl-β–D-xylopyranoside)–(1–6)–[α–L-rhamnopyranosyl-(1-2)]-β–D-glucopyranosyl ester (**loniceroside H**), 3β–[(α–L-arabinopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid *O*-(3–*O*–acetyl-β–D-xylopyranosyl)-(1-6)-[α–L-rhamnopyranosyl-(1-2)]-β–D-glucopyranosyl ester (**loniceroside I**), and 3β–[α-L-rhamnopyranosyl-(1-2)-β–D-glucopyranosyl)oxy-olean-12-en-28- oic acid *O*-α–L-rhamnopyranosyl-(1-2)-[β D-xylopyranosyl-(1-6)]β–D-glucopyranosyl ester (**loniceroside J**).

127-2-3. 忍冬 Triterpene Glycosides from the Stems and Leaves of *Lonicera japonicus* Thjunberg. [Caprifoliaceae]-2

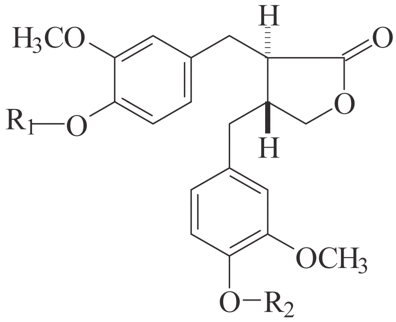
* Minpei Kuroda, Takaaki Shizume, and Yoshihiro Mimaki:
Chem. Pharm. Bull. **62** (1) 92-96 (2014)

**** Known Compounds:***

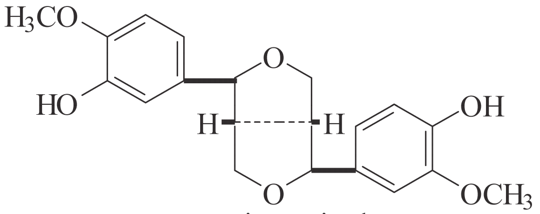
3β-[(α-L-arabinopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid *O*-α–L-rhamnopyranosyl (1-2)-[β–D-xylipyranosyl-(1-6)]-β–D-glucopyranosyl ester (**6, Loniceroside A**),
3β–[(α–L-rhamnopyranosyl-(1-2)-α–L-arabinopyranosyl)oxy]-23-hydroxyolean-12-en-28-oic acid *O*-α–L-rhamnopyranosyl-(1-2)-[β–D-xylopyranosyl-(1-6)]-β–D-glucopyranosyl ester (**7, Loniceroside B**),
3β–[(β–D-glucopyranosyl]-23-hydroxy-olean-12-en-28-oic acid *O*-α–L-rhamnopyranosyl-(1-2)-[β–D-xylopyranosyl-(1-6)]-β–D-glucopyranosyl ester (**8, Loniceroside C**),
3β–[(β–D-glucopyranosyl)oxy]-23-hydroxyolwN-12-en-28-oic acid *O*-β–D-glucopyranosyl -(1-6)]β–D-glucopyranosyl ester (**9, Loniceroside D**),
3β–[(β–D-glucopyranosyl)oxy]-olean-12-en-28-oic acid *O*-α–L-rhamnopyranosyl-(1-2)-[β–D-xylopyranosyl-(1-6)-β–D-glucopyranosyl ester (**10, Loniceroside E**)

128-1. 連翹 Forsythiae Fructus

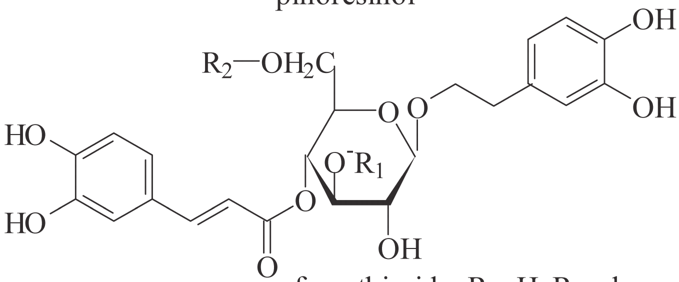
* *Forsythia suspensa* Vahl. [Oleaceae]



	R_1	R_2
arctiin	Glc	CH_3
matairesinol	H	H
matairesinoside	Glc	H

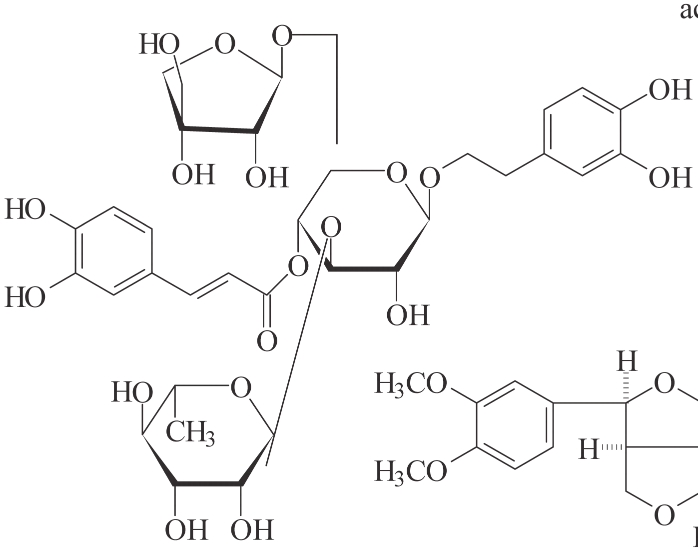


pinoresinol

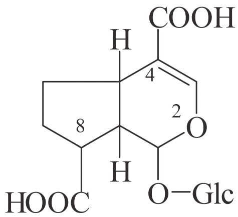


forsythiaside: R_1=H, R_2=rham

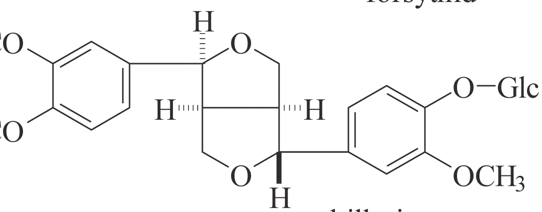
acteoside: R_1=rham, R_2=H



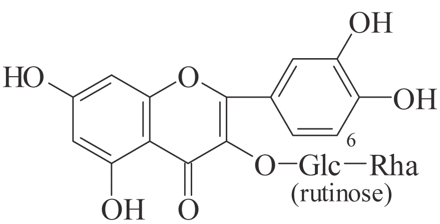
forsythoside B



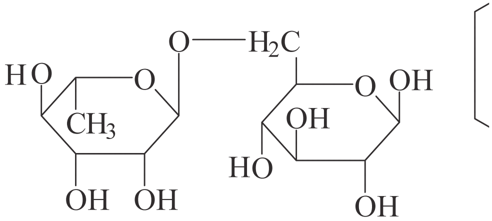
forsythid



phillyrin



rutin

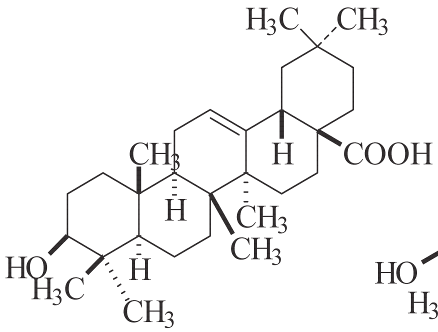


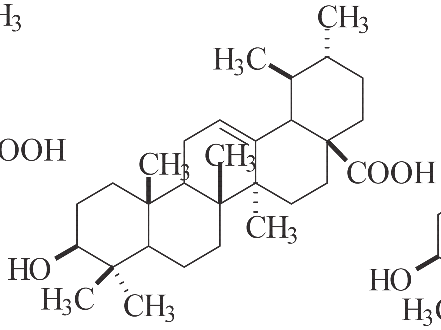
ruitinose

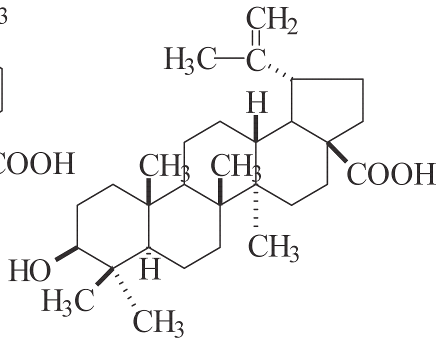
Fig. 1. Chemical structures of compounds

128-2. 連翹 Forsythiae Fructus

* *Forsythia suspensa* Vahl.
F. *viridissima* Lindl.[Oleaceae]


oleanolic acid


ursolic acid


betulinic acid

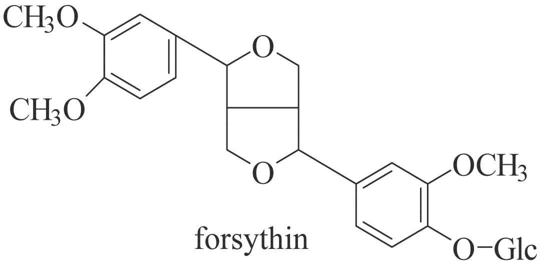

forsythin

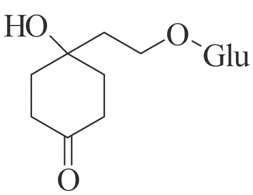
Fig. 1. Chemical structures of compounds

128-3-1. 連翹 Forsythiae Fructus

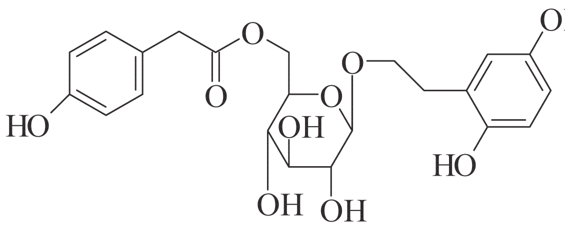
* *Forsythia suspensa* Vahl. and *F. virodissima* Lindl. [Oleaceae]

** Wen-Ying Huang and Shuenn-Jyi Sheu:
Journal of Food and Drug Analysis, **15**(1), 33-39 (2007)

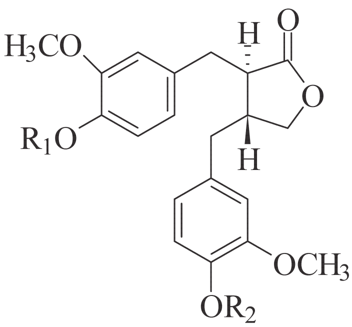
*** rengyoside B(**1**), matairesinol (**2**), salidroside (**3**), quercitrin (**4**), suspensaside (**5**), rengyoside C (**6**), matairesinoside (**7**), forsythiaside (**8**), pinoresinol-β–D-glucoside (**9**), cornoside (**10**), acteoside (**11**), arctigenin (**12**), arctiin (**13**), phillyrin (**14**), pinoresinol (**15**)



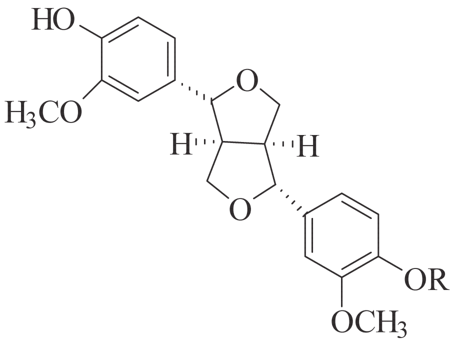
1: rengyoside B



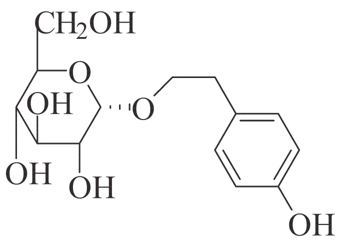
6: rengyoside C



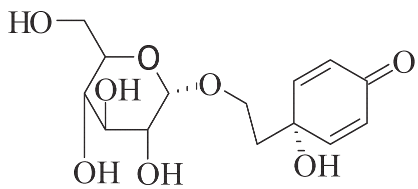
2: matairesinol , R1=R2=H
7: matairesinoside, R1=β–Glu, R2=H
12: arctigenin, R1=H, R2=CH_3
13: arctiin, R1=β–Glu, R2=CH_3



9: pinoresinol-β–D-glucoside, R=Glu
15: pinoresinol, R=H



3: salidroside

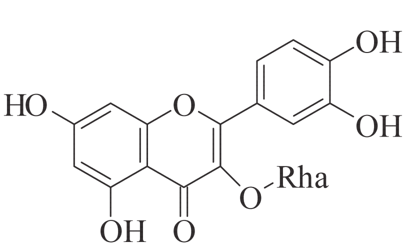


10: cornoside

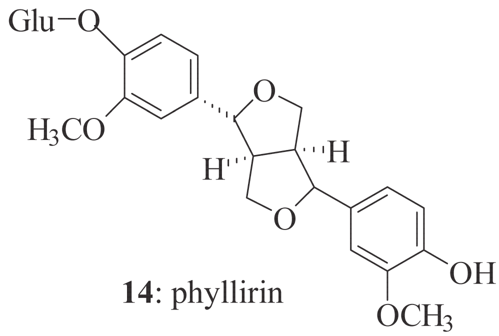
Fig. 1. Chemical structures of compounds

128-3-2. 連翹 Forsythiae Fructus

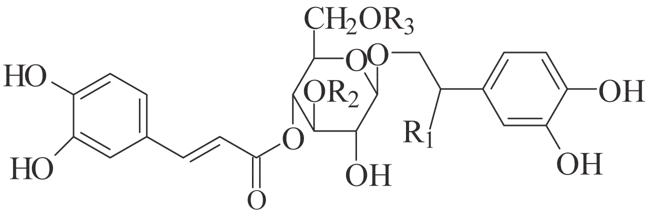
(* Coninued 128-3-1)



4: quercitrin



14: phyllirin

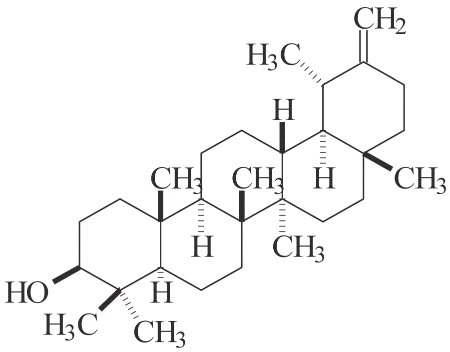


5: suspensaside, R_1=OH, R_2=H, R_3=rha
8: R_1=R_2=H, R_3=rha
11: actepsode, R_1=R_3=H, R_2=rha

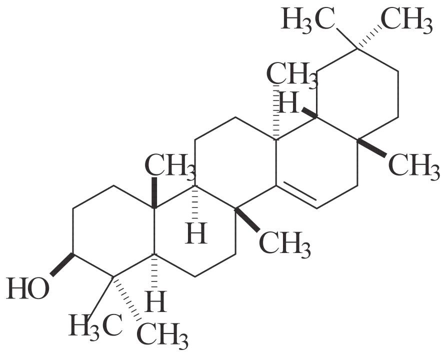
Fig. 1. Chemical structures of compounds

129-1. 蒲公英 Taraxaci Herba

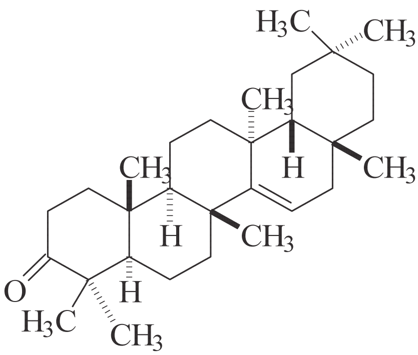
* *Taraxacum mongolicum* Hand.-Mazz.
T. *officinale* Weber [Compositae]



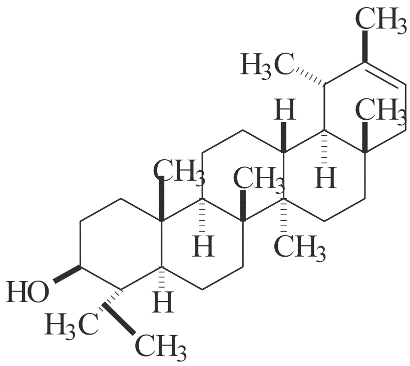
taraxasterol



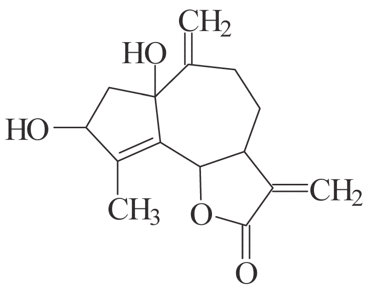
taraxerol



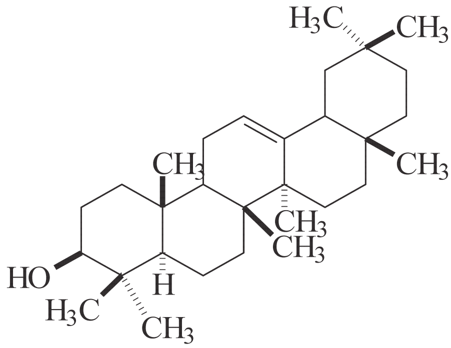
taraxenone



φ–taraxasterol



ridentin

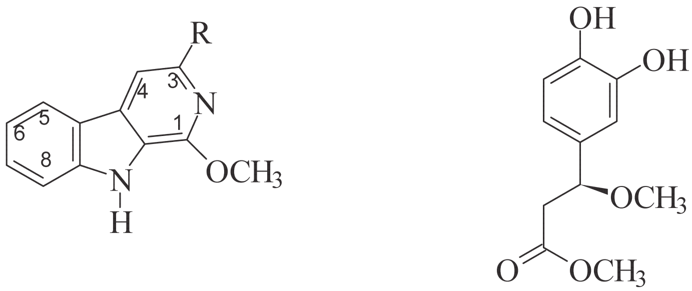


β–amyrin

Fig. 1. Chemical structures of compounds

129-2. 蒲公英 *Taraxacum formosanum* [Compositae] (台灣)

* Y-L Leu, L-S Shi, and A-G Damu,
Chem. Pharm. Bull. **51**(5), 599-601 (2003)



1 taraxacine-A: R=H
2 taraxacine-B: R=COOH

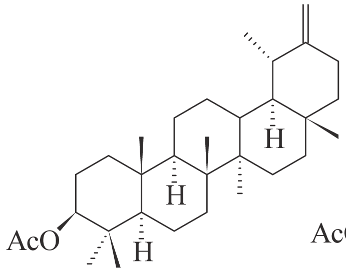
3 taraxafolin

Fig. 1. Chemical structures of compounds **1**--**3**

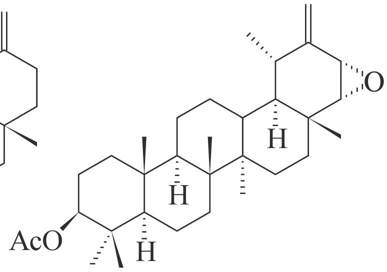
* Others: two β–carboline alkaloids, two indole alkaloids, two chlorophylls, two flavonoids, one coumarin, two triterpenoids,one monoterpenoid, one ionone, four steroids, and eight benzoids.

129-3-1.蒲公英 *Taraxacum platycarpum* [Compositae]

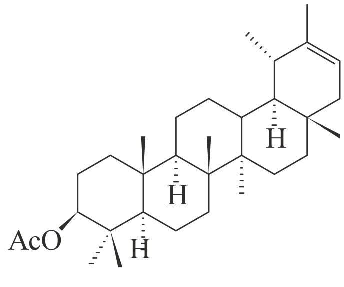
* Tsutom Warashina, Kaoru Umehara, and Toshio Miyase:
Chem. Pharm. Bull. **60**(2) 205-212 (2012)



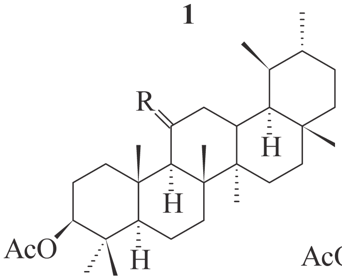
1



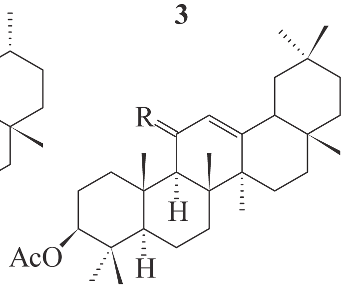
3



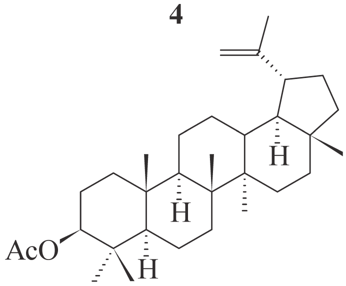
4



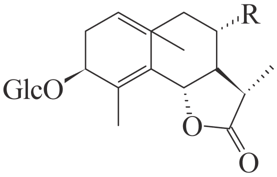
R
6: H, H
7: α−OOH, β−H
8: O



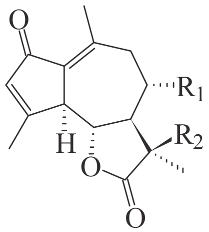
R
9: H, H
10: α−OOH, β−H
11: O



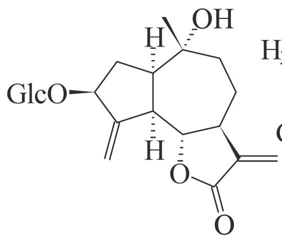
12



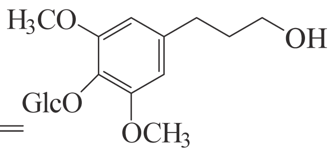
R
19: H
20: OH



	R1	R2
21	O-Glc	H
22	O-Glc	OH
23	H	O-Glc



25



26

Chart 1. Structures of Known Compounds **1, 3, 6--12, 19--23, 25 and 26**

* A MeOH extract from the roots of *Taraxacum platycarpum* has shown significant effects on the proliferation of normal human skin fibroblasts, Chemical analysis of the resulted in the isolation of 26 compounds, including eight new triterpenes, one new sesquiterpene, and 17 known compounds. Triterpenes **1--18,** sesquiterpene glycosides **19-25**, and a phenyl-propyl glycoside **26.**

* Compounds **1,3,4,6-11,** and **12**were known triterpened identified as taraxasteryl acetate (**1**), ptiloepoxy[acetate (**3**), φ-taraxasteryl acetate (**4**), α−amyrin acetate (**6**)

129-3-2. 蒲公英 *Taraxacum platycarpum* [Compositae]

* Tsutom Warashina, Kaoru Umehara, and Toshio Miyase:
Chem. Pharm. Bull. **60**(2) 205-212 (2012)

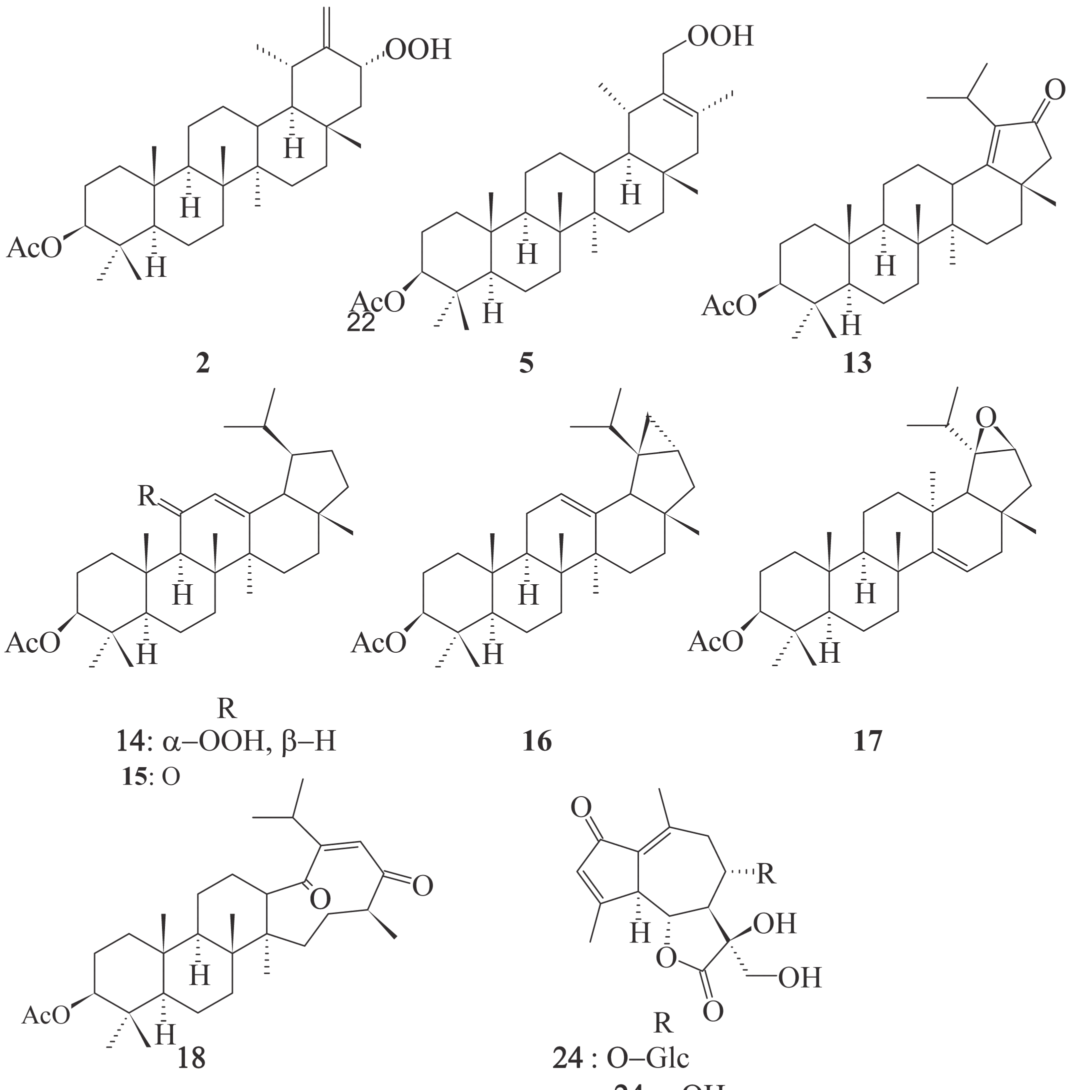


Chart 2. Structures of New Compounds **2, 5, 13--18, and 24**

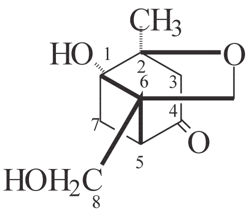
*Continued Chart 1: 3β–acetoxy–11α–hydroperocy-12-ursene (**7**), neoilexonolacetate (**8**), β–amyrine acetate (**9**), 3β–acetoxy-11α–hydroperxy-12-oleanene (**10**), 3β–acetoxy-12-oleanen-11-one (**11**). Compounds **19--23, 25**, and **26**were known Sesquiterpene glycosides and a phenylpropylglycoside identified as sonchuside A (**19**), cichorioside C (**20**), deacetyl-matricarin 8-*O*-β–D-glucopyranoside (**21**), 11β–hydroxydeacetylmatricarin 8-*O*-β–D-gluco-pyranoside (**22**), 11β–hydroxyleucodin 11-*O*-β–D-glucopyranoside (**23**), ixerin D (**25**), and dihydrosyringin (**26**).

130-1-1 牡丹皮 Moutan Radicis Cortex

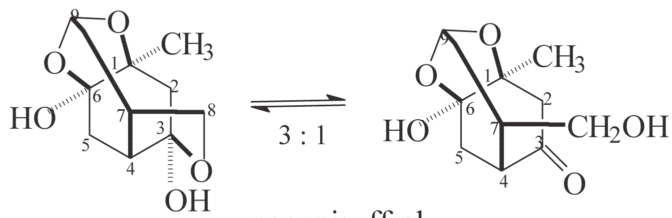
**Paeonia suffruticosa* Andrews (*P. mouton* Sims) [Paeoniaeeae]

** M. Yoshikawa et at: *Chem. Phann*. *Bull*. **48**(9) 1327-1331 (2000)

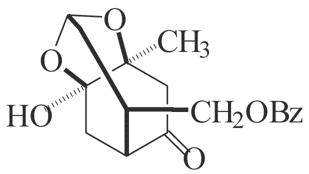
*** Radical Scavenging Effect



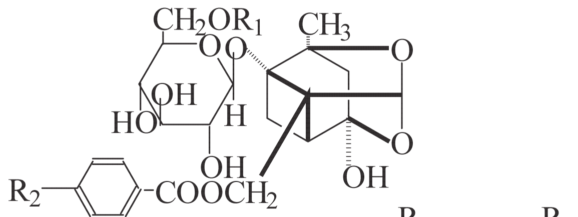
paeonisuffrone



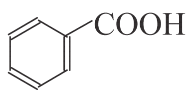
paeonisuffral



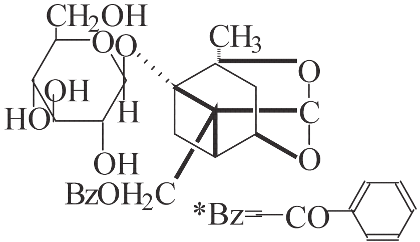
paeoniflorigenone



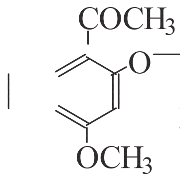
	R_1	R_2
paeoniflorin	H	H
benzoyJpaeoniflorin	Bz	H
benzoyloxypaeoniflorin	Bz	OH



benzoic acid



albiflorin



paeonol	R=H
paeonoside	R=Glc
paeonolide	R=Glc $\overset{4}{—}$Ara

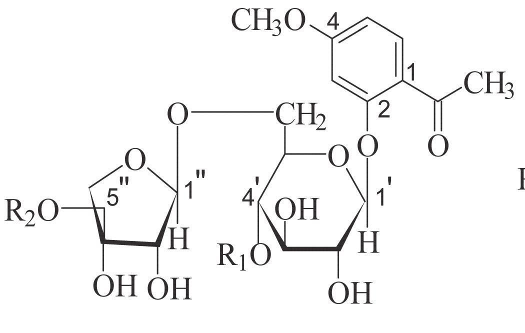
Fig. 1. Chemical structures of compounds

130-1-2. 牡丹皮 Moutan Radicis Cortex

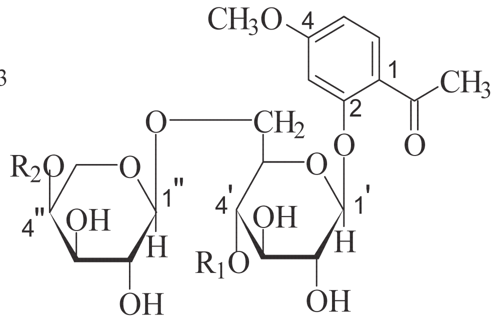
* *Paeonia suffruticosa* Andrews(=*Paeonia moutan* Sims)[Paeoniceae]

** M. Yoshikawa et al : *Chem. Pharm. Bull.* **49**(1), 69-72 (2001)

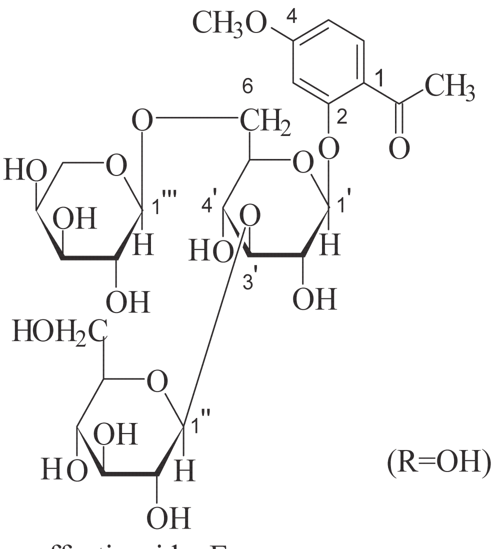
*** Radical Scavenging Effects of Suffruticosides and Galloyl-oxypaeoniflorin



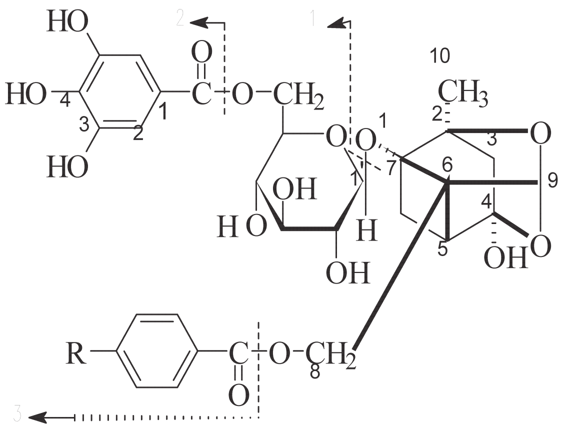
suffruticoside A : R_1=H, R_2=alloyl
suffruticoside B : R_1=galloyl, R_2=H
apiopaeonoside : R_1=R_2=H



suffruticoside C : R_1=H, R_2=galloyl
suffruticoside D : R_1=galloyl, R_2=H
paeonolide : R_1=R_2=H



suffruticoside E



(R=OH)

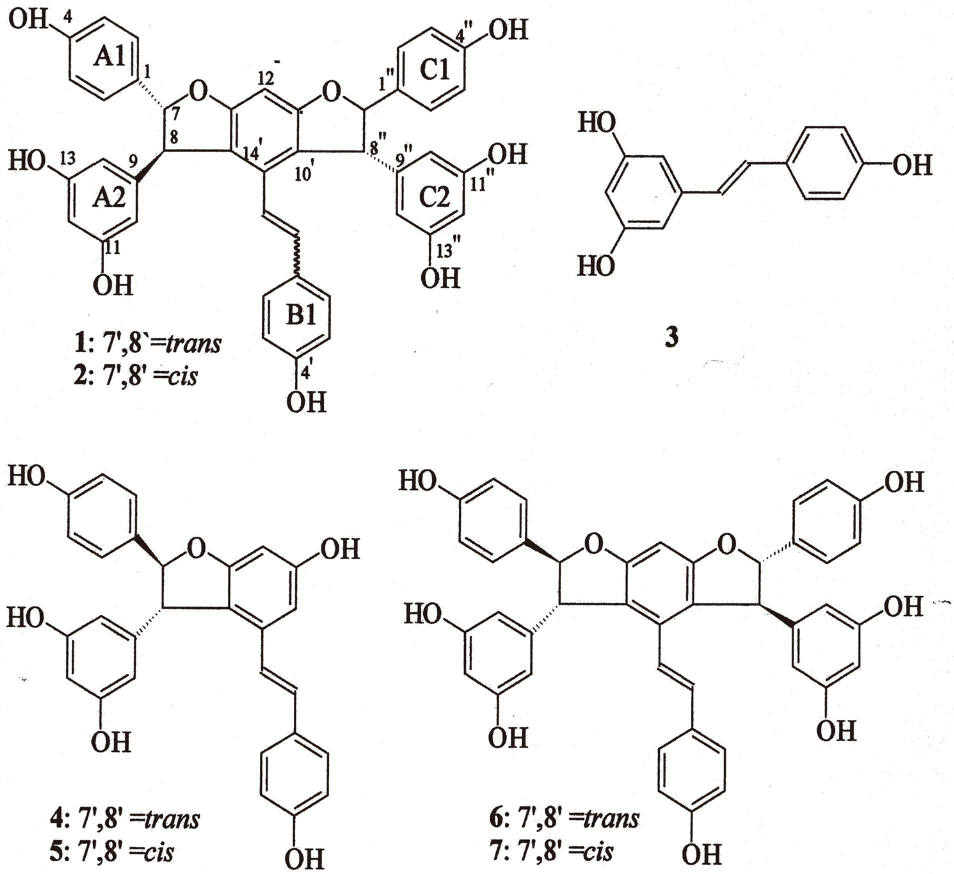
galloyl-oxypaeoniflorin : R=OH
galloyl-paeoniflorin : R=H

Fig. 1. Chemical structures of compounds

130-2-1. 牡丹種子 Moutan Radicis Cortex

*** Oligostilbenes from the Seeds of *Paeonia suffruticosa* Andr. [Paeoniaceae]**

**** Chun-Nian He, Yong Peng, Li-Jia Xu, Zheng-An Liu, Ai-Guo Zhong, and Pei-Gen Xiao : *Chem. Pharm. Bull.* 58(6) 843-847 (2010)**



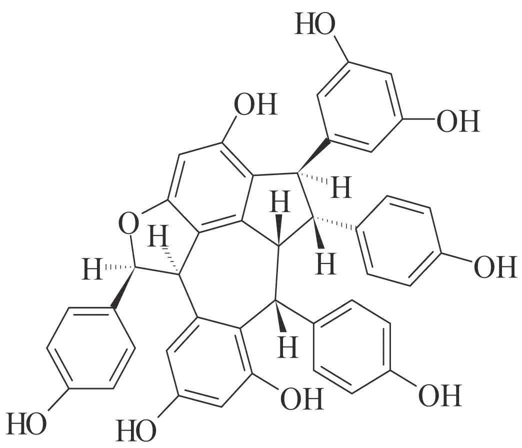
1: 7',8'=*trans*
2: 7',8'=*cis*
3
4: 7',8'=*trans*
5: 7',8'=*cis*
6: 7',8'=*trans*
7: 7',8'=*cis*

Fig. 1-1. Structures of Compounds 1-7

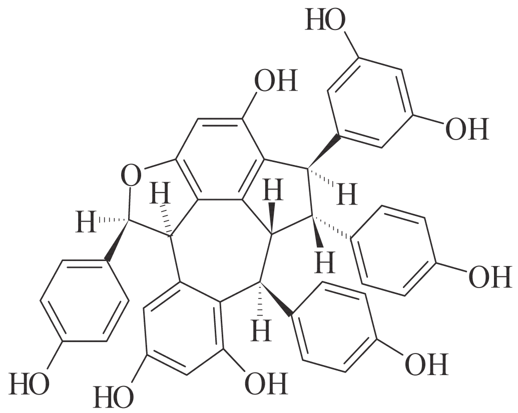
* Three new Oligostilbenes, *trans*-suffruticosol D (1), *cis*-suffruticosol D (2), and *cis*-gnetin H (7), were isolated along with the eight known stilbens, *trans*-resveratol (3), *trans* ε–viniferin (4), *cis*-ε–viniferin (5), gnetin H (6), suffruticosol A (8), suffriticosol B (9), suffruticosol C (10), and *cis*-ampelopsin E (11) from the seeds of *Paeonia suffrticosa.*

130-2-2. 牡丹種子 Moutan Semen

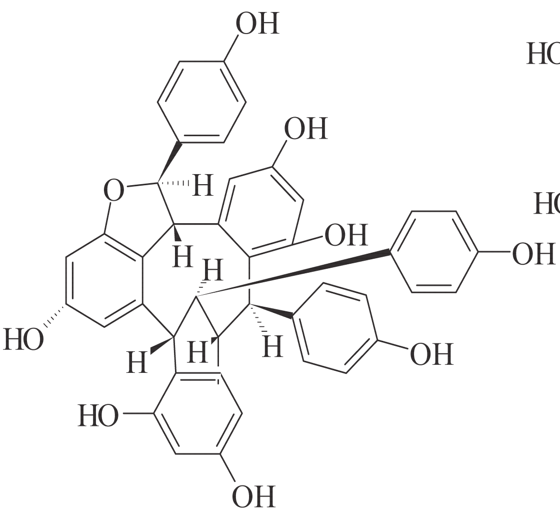
* Oligostilbenes from the Seeds of
Paeonia suffruticosa Andr. [Paeonicacea]
** Chun-Nian He, Yong Peng, Li-Jia Xu, Zheng-An Liu. Ai-Guo Zhong, and Pei-Gen Xiao :
Chem. Pharm. Bull. **58**(6) 843-847 (2010)



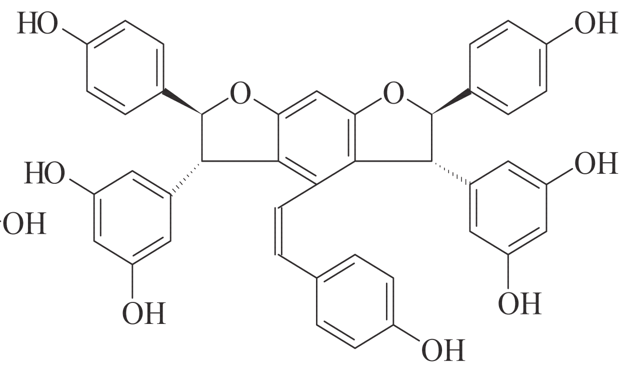
8 suffrticosol A



9 siffruticosol B



10 suffruticosol C



11 *cis*-ampelopsin E

Fig. 1-2. Structures of Compounds **8--11**

131. 使君子 Quisqualis Fructus

* *Quisqualis indica* L. [Combretaceae]

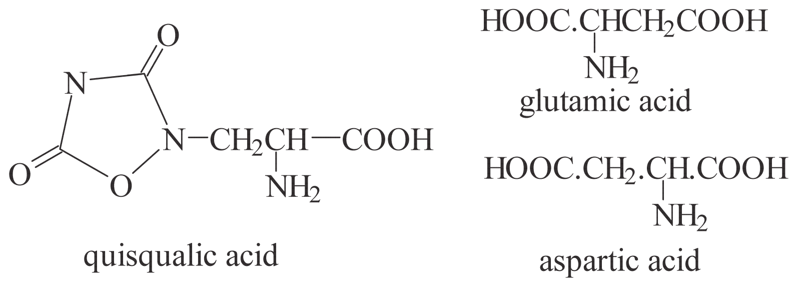
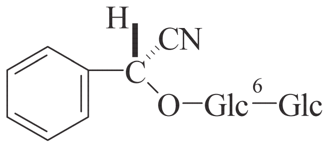


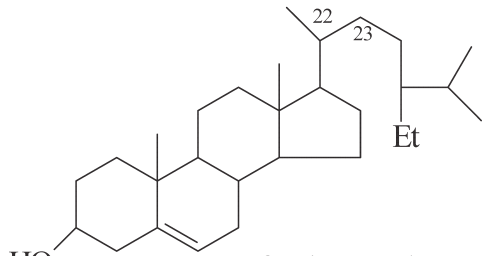
Fig. 1. Chemical structure of quisqualic acid

132-1. 烏梅 Mume Fructus

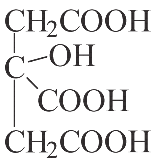
* *Prunus mume* Sieb. et Zucc. [Rosaceae]



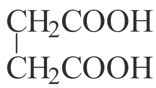
amygdalin



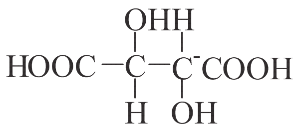
β−sitosterol



citric acid

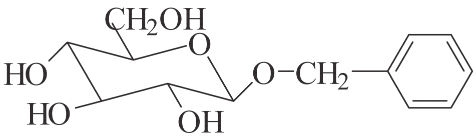


succinic acid

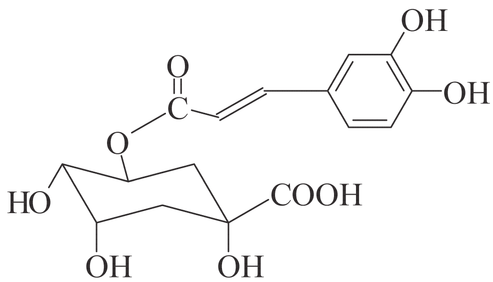


tartaric acid

malic acid



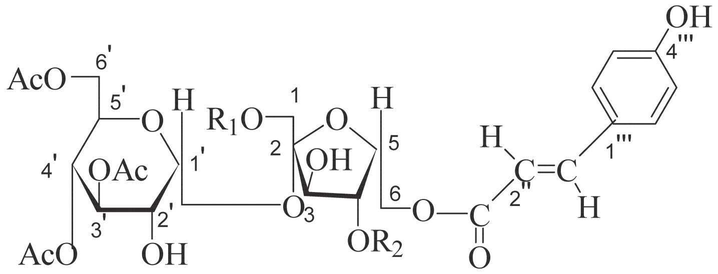
benzyl-β−D-glucopyranoside (BG)



cholorogenic acid (CA)

Fig. 1. Chemical structures of compounds

132-2. 梅花 Radical Scavenging Constituents from the Flowers of *Prunus mume*: Structure of Prunose III (1)

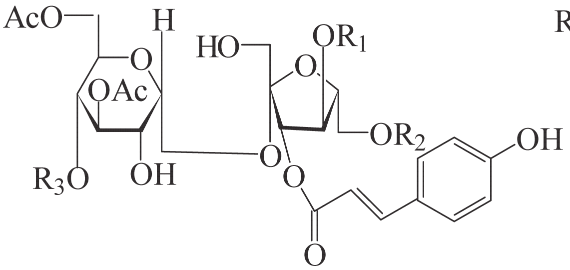


prunose III : R_1=H. R_2=Ac

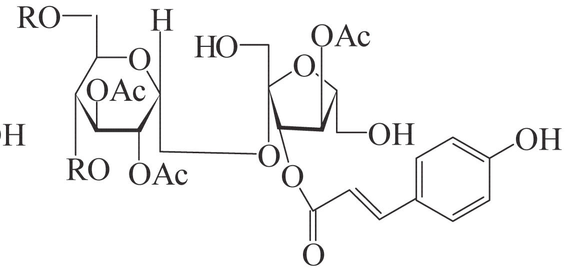
* prunose III: 4,3',4',6'-tetra-***O*-**acetyl-6-***O*-***p*-coumaroylsucrose
Prunose I : R_1=Ac, R_2=Ac
prunose II : R_1=Ac, R_2=H

132-2. 梅花 Flower buds of *Prunus mumu* (2)

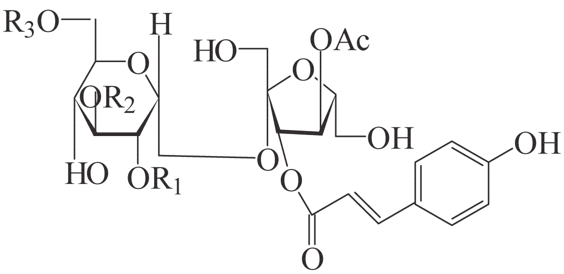
* Katsuyoshi Fuimoto, Masayuki Yoshikawa et al :
Chem. Pharm. Bull. **61**(4) 445-451 (2013)



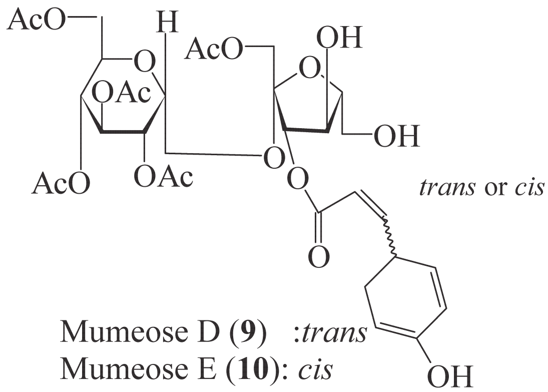
Mumeose F (**1**):
R_1=H, R_2=H, R_3=Ac
Mumeose G (**2**):
R_1=Ac, R_2=H, R_3=H
Mumeose I (**4**):
R_1=H, R_2=Ac, R_3=Ac



Mumeose H (**3**): R=H
Mumeose J (**5**): R=Ac



Mumeose A (**6**):
R_1=Ac, R_2=H, R_3=H
Mumeose B (**7**):
R_1=H, R_2=Ac, R_3=Ac
Mumeose C (**8**):
R_1=Ac, R_2=Ac, R_3=Ac



Mumeose D (**9**) :*trans*
Mumeose E (**10**): *cis*

Fig. 1. Structures of Constituents isolated from the Flower Buds of *Prunus mume*

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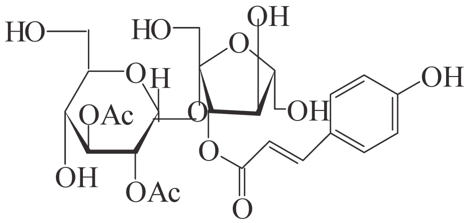
* The MeOH Extract from the Flower buds of *Prunus mume;* cultivated in Zhejiang province,showed an inhibitory effectt on aldose reductase.

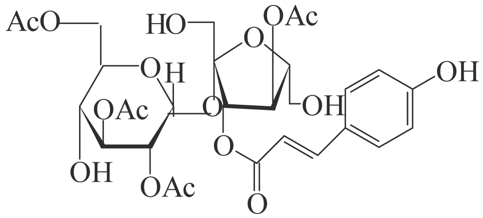
132-3. 烏梅 Mume Fructus (1)

* Structures of acylated sucroses and an acylated flavonol glycoside from the flower buds of *Prumus mume*

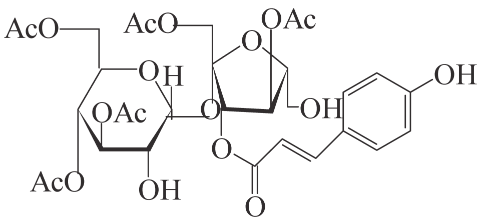
** Seikou Nakamura, Katsuyoshi Fujimoto, Takahiro Matsumoto, Tomoe Ohta, Keiko Ogawa, Haruka Tamura, Hisashi Matsuda Masayuki Yoshikawa:
J Nat Med: **67**(4) 799-806 (2013)



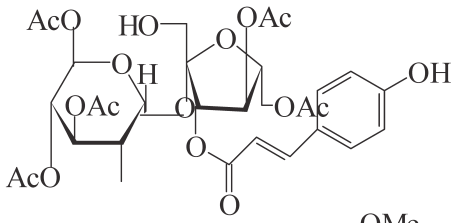
mumeose K (**1**)



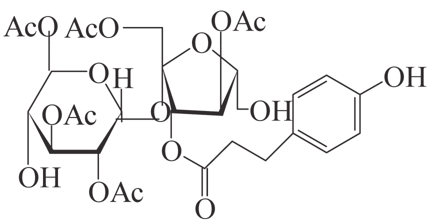
mumeose L (**2**)



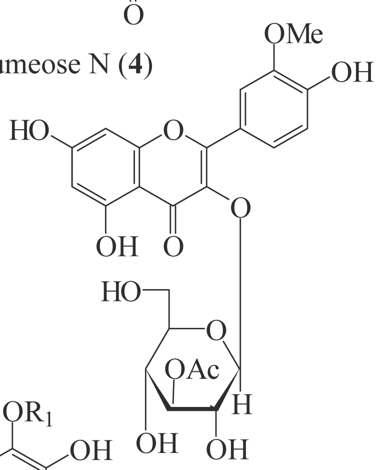
mumeose M (**3**)



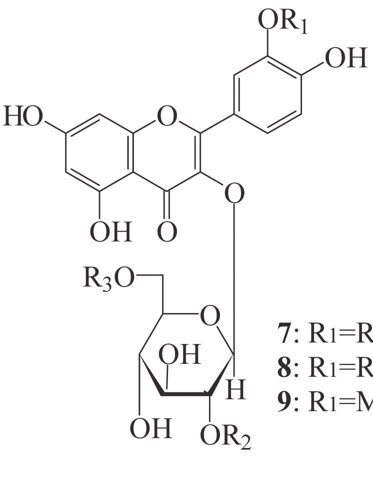
mumeose N (**4**)



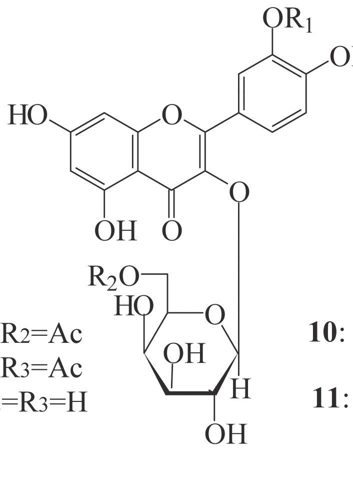
mumeose O (**5**)

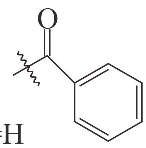


mumeflavonoside A (**6**)



7: R1=R3=H, R2=Ac
8: R1=R2=H, R3=Ac
9: R1=Me, R2=R3=H



10: R1=H, R2= 

11: R1=Me, R2=H

Fig. 1. Structures of constituents isolated from the flower buds of *P. mume*

132-3. 烏梅 Mume Fructus (2)

* Structures of acylated sucroses and an acylated flavonol glycoside and inhibitory effects of constituents on aldose reductase from the flower buds of *Prunus mume*

** Seikou Nakamura, Katsuyoshi Fujimoto, Takahiro Matsumoto, Tomoe Ohta, Keiko Ogawa, Haruka Tamura, Hisashi Matsuda, Masayuki Yoshikawa:

J Nat Med **67** (4) 799-806 (2013)

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* **Abstract** Five new acylated sucroses, mumeoses K-O and a new acylated flavonol glycoside, mumeflavonoside A, were isolated from the flower buds of *Prunus mume*. cultivated in Zhejiang province,China.

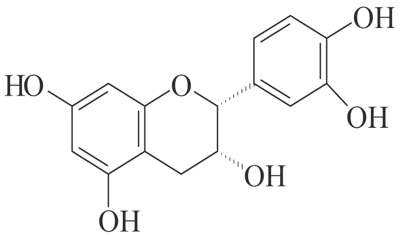
* **Keywords** *Prumus mume* . Mumeose. mumeflavonoside. Acylated sucrose. Medicinal flower.

* Five new acylated sucroses, termed mumeoses K (**1**), L (**2**), M (**3**), N (**4**), and O (**5**), and a new acylated flovonol glycoside, termed mumeflavonoside A (**6**), were isolated from the flower buds of Chinese *P. mume.*

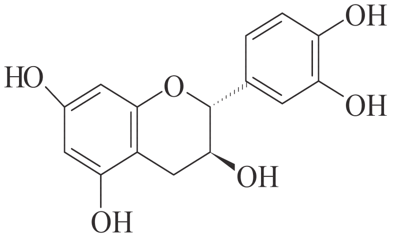
* This paper deals with the structure elucidation of the new constituents (**1-6**) and the inhibitory effects of the isolated acylated sucroses and flavonol glycoside on aldose reductase.

133-1-1. 檳榔子 Arecae Semen

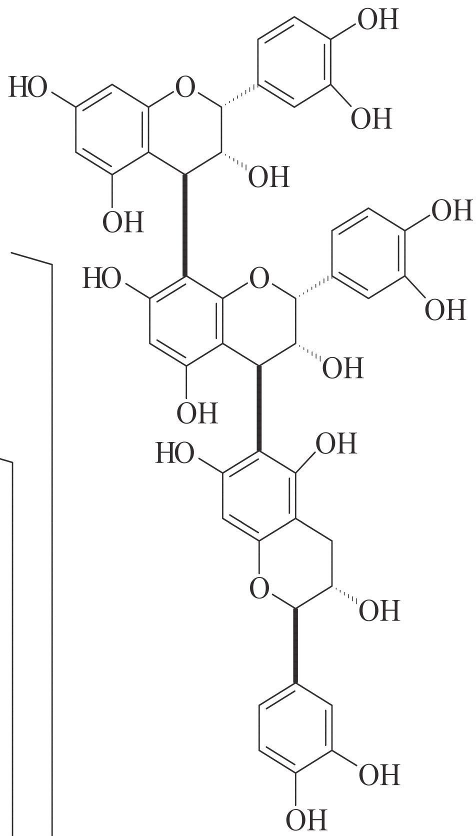
* *Areca catechu* L. [Palmae]



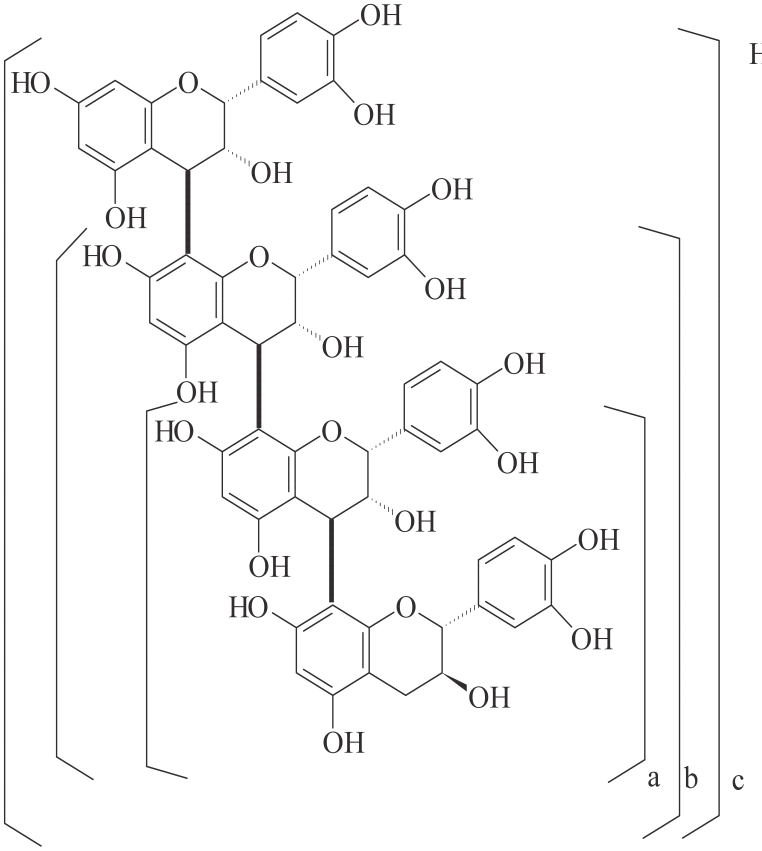
(-)-catechin



(+)-catechin



arecatannin B_1

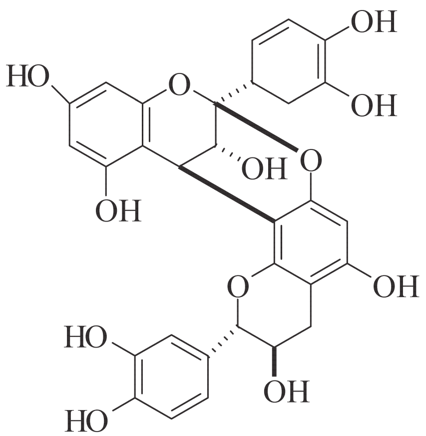


a: procyanidin B_1 , b: arecatannin A_1 , c: arecatannin A_2

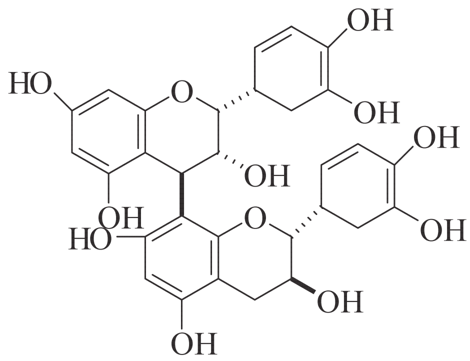
Fig. 1. Chemical structures of compounds

133-1-2. 檳榔子 Arecae Semen

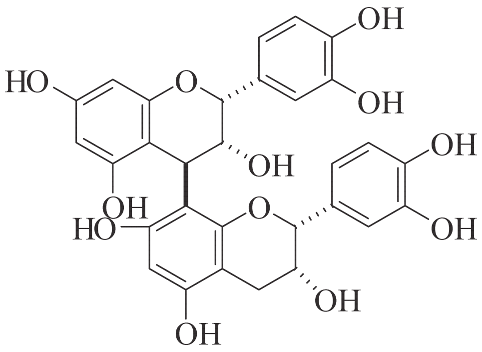
* *Areca catechu* Linn'e [Palmae]



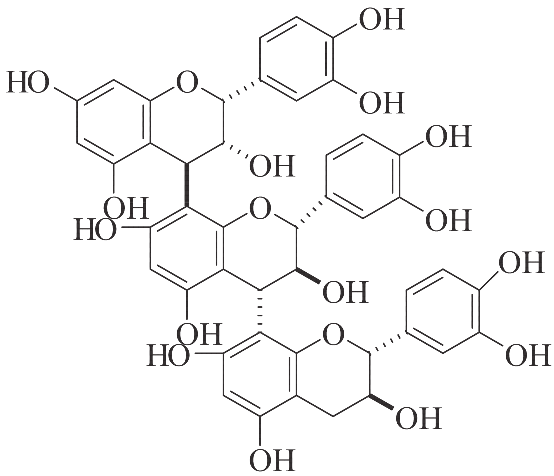
procyanidin A—1



procyanidin B—1



procyanidin B—2

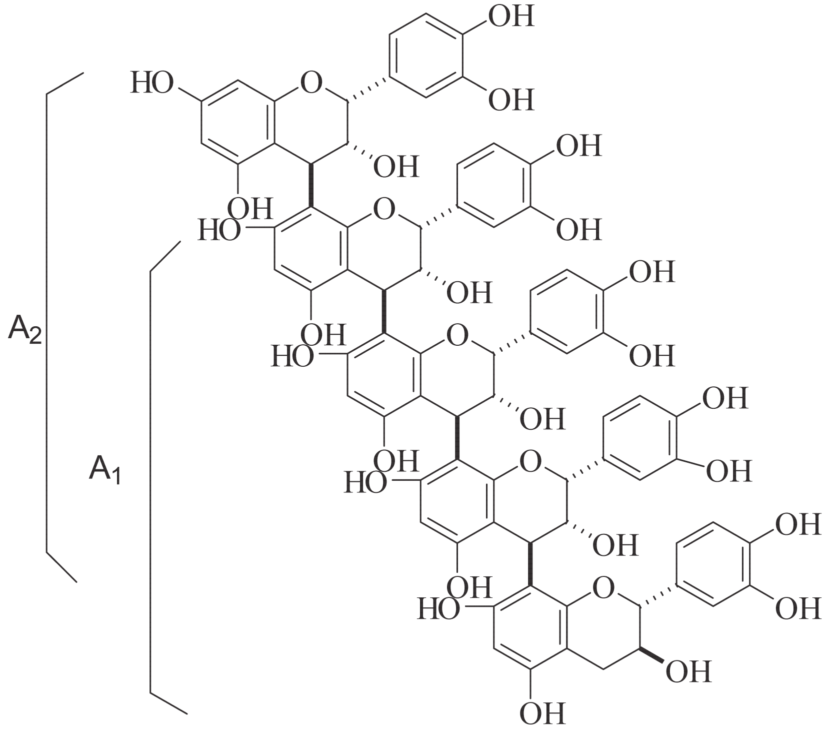


procyanidin C—3

Fig. 1. Chemical structures of compounds

133-1-3. 檳榔子 Arecae Semen

*_Areca catechu_ L. [Palmae]

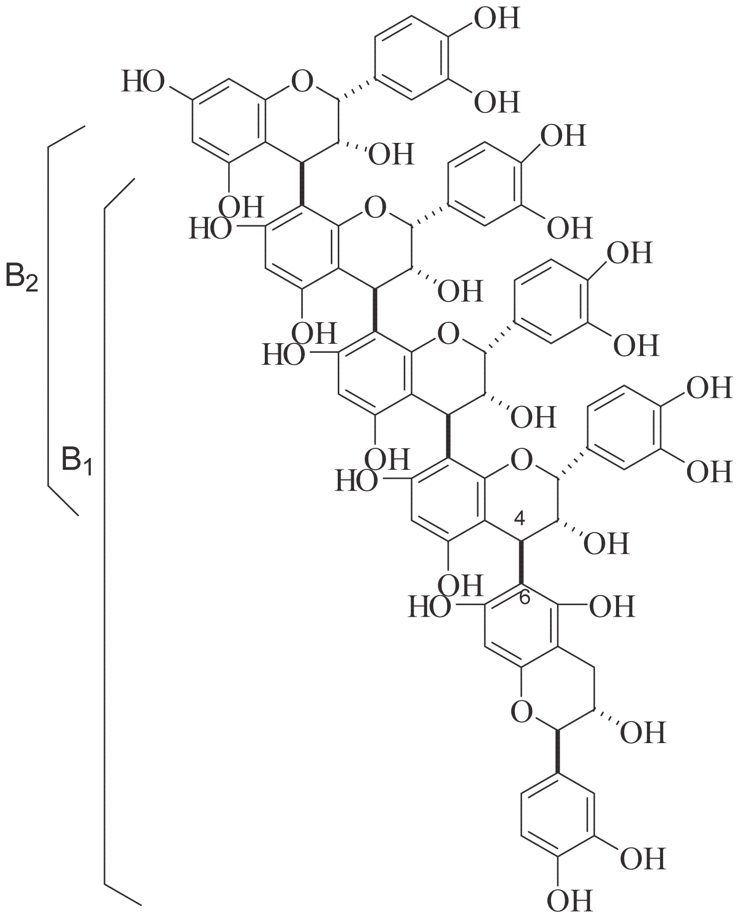


arecatannin A Series

Fig. 1. Chemical stractures of compounds

133-1-4. 檳榔子 Arecae Semen

* *Areca catechu* L. [Palmae]

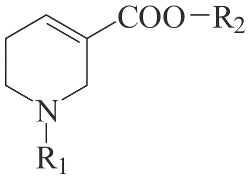


arecatannin B Series

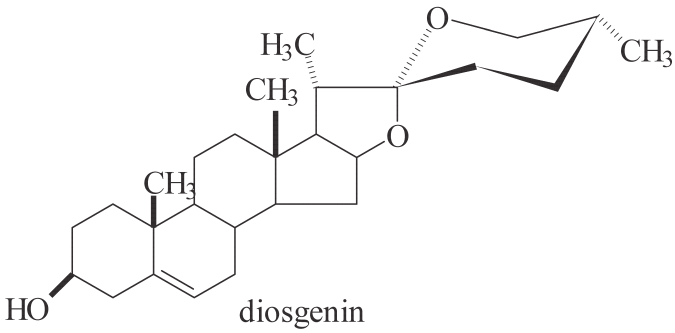
Fig. 1. Chemical structures of compounds

133-2. 檳榔子 Arecae Semen

* *Areca catechu* L.[Palmae]



	R_1	R_2
arecoline	CH_3	CH_3
arecaidine	CH_3	H
guvacine	H	H
guvacoline	H	CH_3

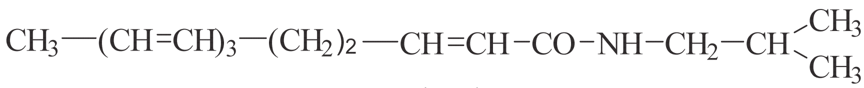


diosgenin

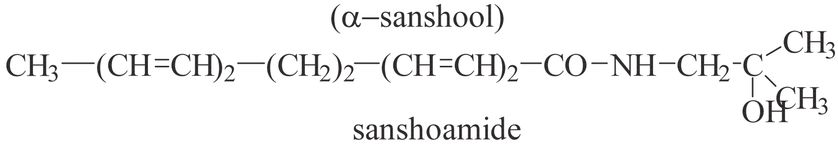
Fig. 1. Chemical structures of compounds

134. 花椒 Zanthoxyli Fructus

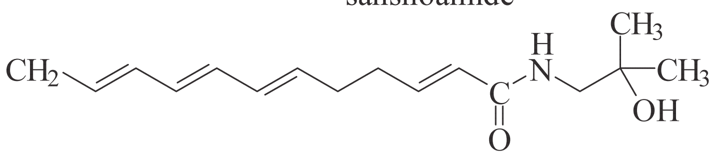
* *Zanthoxylum piperitum* DC.
Z. *bungeanum* Maxim.[Rutaceae]



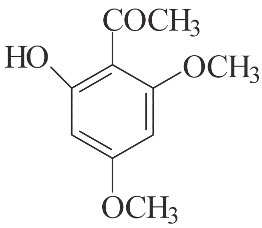
sanshool I
(α–sanshool)



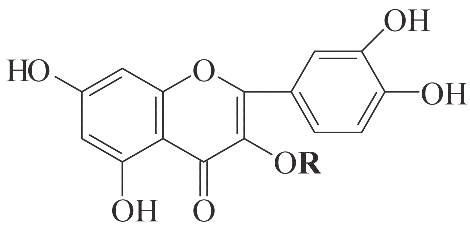
sanshoamide



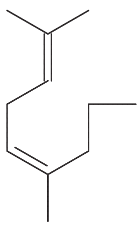
hydroxy–β–sanshool



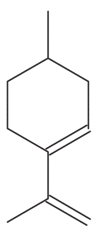
xanthoxylin



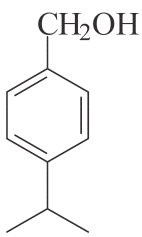
hyperin : R=Gal
quercitrin : R=Rha



geraniol



limonene



cumic alcohol

Fig. 1. Chemical structures of compounds

135–1. 莪朮 Zedoariae Rhizoma

* *Curcuma zedoaria* Roscoe [Zingiberaceae]

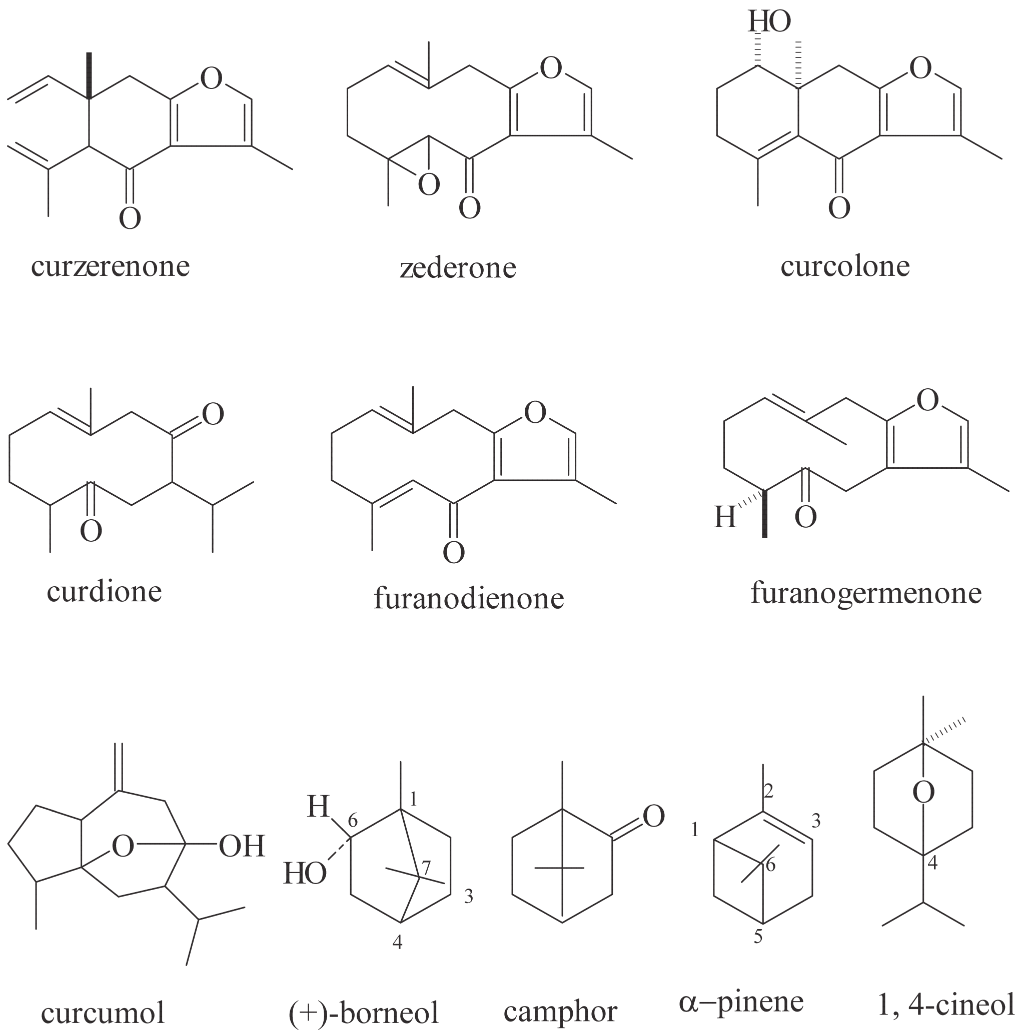
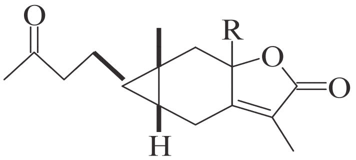


Fig. 1. Chemical structures of compounds

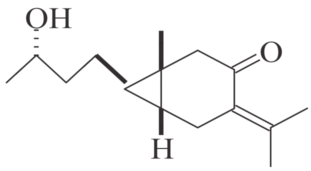
135-2-1. 莪朮 Zedoariae Rhizoma

* *Curcuma zedoaria* Roscoe [Zingiberaceae]
** Toshio Morikawa: *J Nat Med,* **61**(2), 112-126 (2007)
*** Hepatoprotective activity and Vasorelaxtant activity

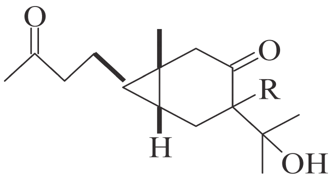
(I): *Carabrane-type sesquiterpenes*



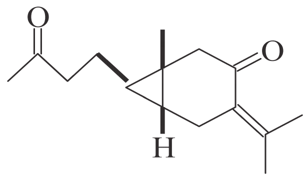
curcumenolactone A (**1**): R=β–H
curcumenolactone B (**2**): R=α–H
curcumenolactone C (**3**): R=α–OH



4S-dihydrocurcumenone (**4**)

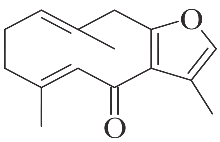


curcarabranol A (**5**): R=β–H
curcarabranol B (**6**): R=α–H

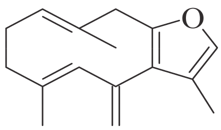


curcumenone (**7**)

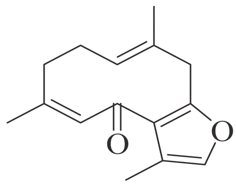
(II): *Germacrane-type sesquiterpenes*



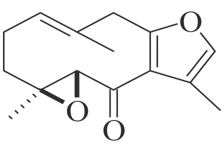
furanodienone (**8**)



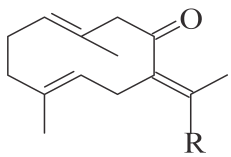
furanodiene (**9**)



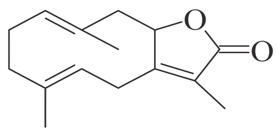
isofuranodienone (**10**)



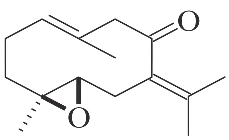
zederone (**11**)



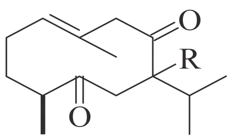
germacrone (**12**): R=CH_3
13-hydroxy-
germacrone (**13**): R=CH_2OH



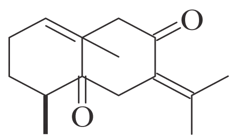
glechomanolide (**14**)



(+)-gemacrone 4,5
-epoxide (**15**)



curdione (**16**): R=β–H
neocardione (**17**): R=α–H



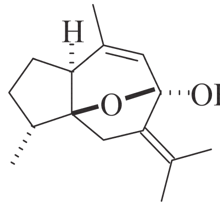
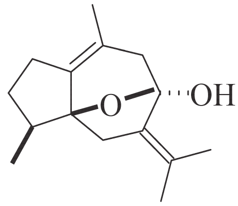
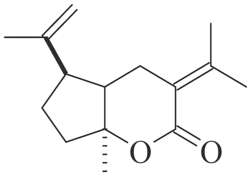
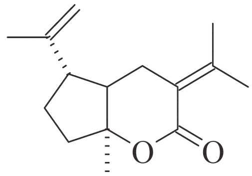
dehydrocurdione (**18**)

Fig. 1-1. Chemical structurs of compounds **1--18**

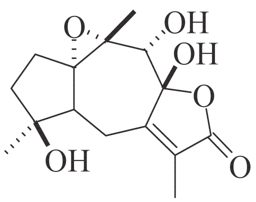
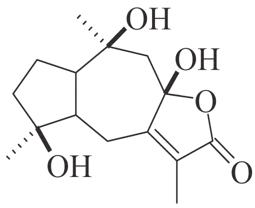
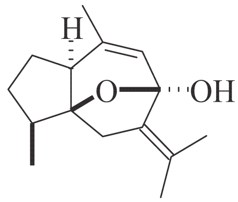
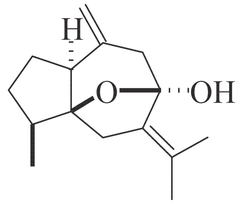
135-2-2. 莪朮 Zedoariae Rhizoma

* (Continued 135-2-1)

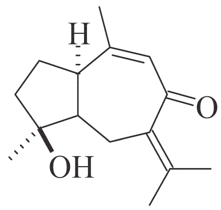
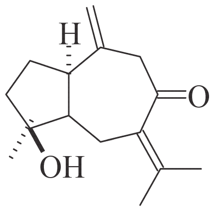
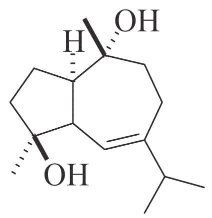
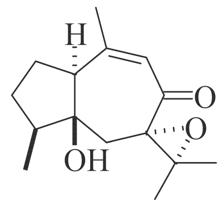
(III). *Guaiane-type sesquiterpenes*

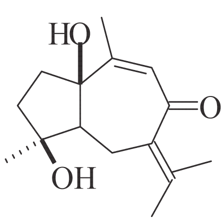
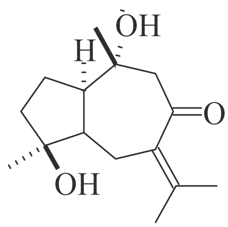
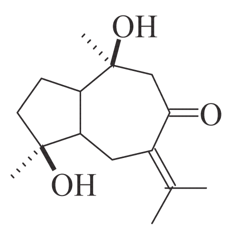
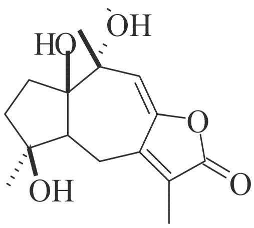
4-epicucumenol (**19**) neocucumenol (**20**) gajutsulactone A (**21**) gajyutsulactone B (**22**)

zedoarolide A (**23**) zedoarolide B (**24**) curcumenol (**25**) isocurcumenol (**26**)

procurcumenol (**27**) isoprocurcumenol (**28**) alismoxide (**29**) 7α,11α−epoxy-5β−hydroxy-9-guaiaen-8-one (**30**)

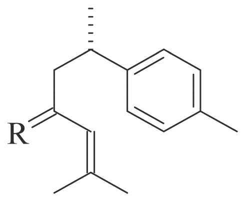
aerugidiol (**31**) zedoarondiol (**32**) isozedoarondiol (**33**) zedoalactone B (**34**)

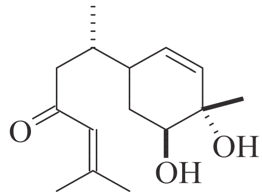
Fig. 1-2. Chemical structures of compounds **19--34**

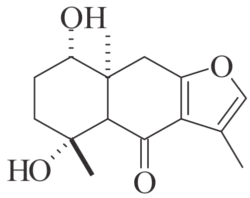
135-2-3. 莪朮 Zedoariae Rhizoma

* (Continued 135-2-2)

(IV). *Bisaborane-type sesquiterpenes*





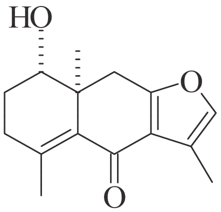


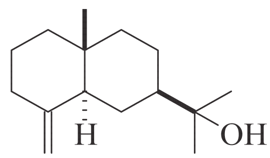
(+)-*ar*-tumerone (**35**): R=O
bisacumol (**36**): R=α–OH,β–-H

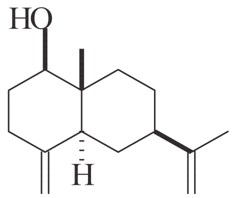
bisacurone (**37**)

zedoarofuran (**38**)

[*Xanthane-type sesquiterpenes*]







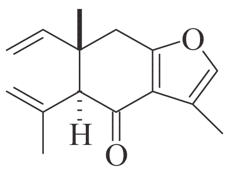
curculone (**39**)

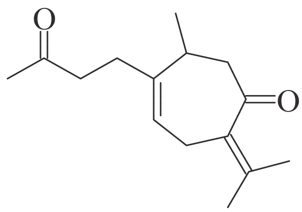
β–eudesmol (**40**)

β–dictyopterol (**41**)

[Diarylheptanoids]

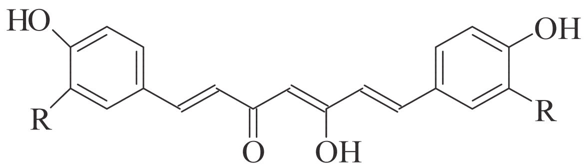
(V). *Elemane-type sesquiterpenes*





cuzerenone (**42**)

curcumadione (**43**)

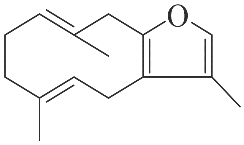


curcumin (**44**): R=OMe
bis (4-hydroxycinnamoylmethane (**45**): R=H

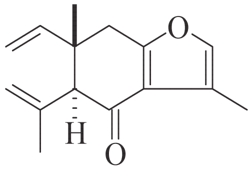
Fig. 1-3. Chemical strractures of compounds **35--45**

135-3. 莪朮 Comparison of *Curcuma* sp. in Yakushima with *C. aeruginosa* and *C. zedoaria* in Java and Essential oil component

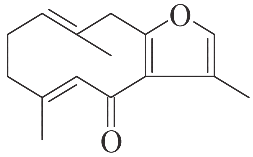
* Chinami Kitamura, Tetsuro Nagoe, Made Sri Prama, Andria Agusta, Kazuyoshi Ohashi, Hirotaka Shibuya: *J Nat Med,* 61(3), 239-243 (2007)



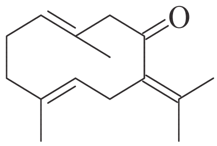
furanodiene (**1**)



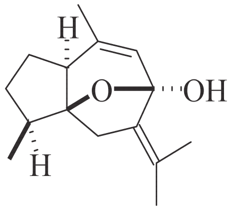
curzerenone (**2**)



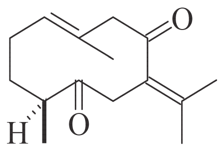
furanodienone (**3**)



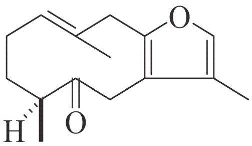
germacrone (**4**)



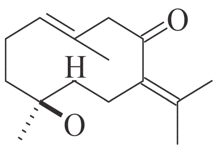
curcumenol (**5**)



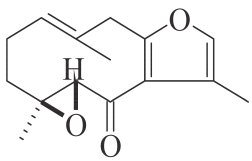
dehydrocurdione (**6**)



furanogemenone (**7**)



(4*S*,5*S*)-(+)-germacrone 4,5-epoxide (**8**)



zederone (**9**)

Fig. 1. Sesquiterpenes in *Curcuma* sp.

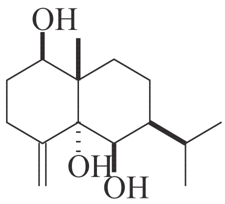
* RAPD: random amplified polymorphic DNA analysis

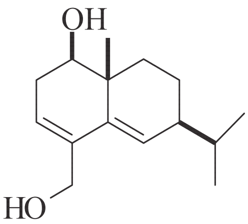
X-3-1-1. 野菊花 Chrysanthemi Flos

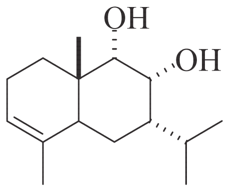
* *Chrysanthemum indicum* L. [Compositae]

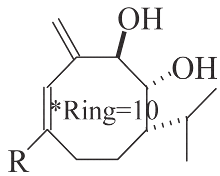
** Toshio Morikawa: *J Nat Med,* **61**(2), 118-121 (2007)

(I). *Sesquiterpenens*







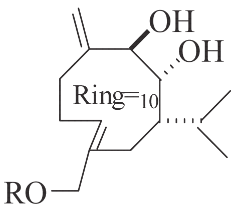


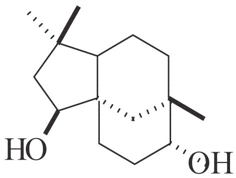
kikkanol A

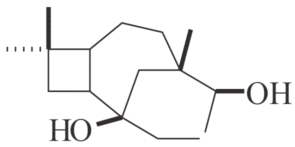
kikkanol B

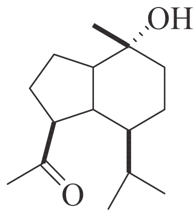
kikkanol C

kikkanol D: R=CH_2OH
kikkanol D monoacetate
R=CH_2OAc
kikkanol E: R=CHO









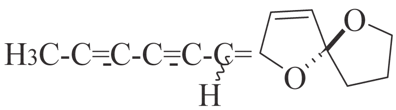
kikkanol F: R=H
kikkanol F
monoacetate: R=Ac

clovanediol

caryolane 1, 9β–diol

oplopanone

(II). *Polyacetylenes*



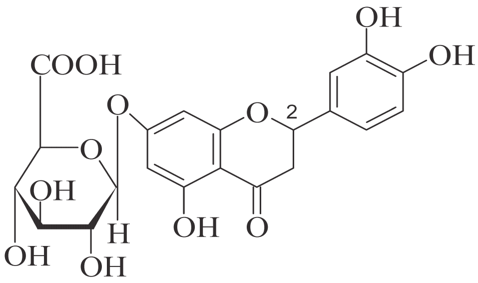
cis-spiroketalenolether polyyne
trans-spiroketalenolether polyyne

Schme 1. Chemical contituents from the flowers of *Chrysantemum indicum*

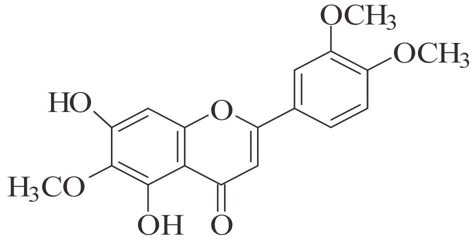
X-3-1-2. 野菊花 Chrysanthemi Flos

* (Continued X-3-1-1)

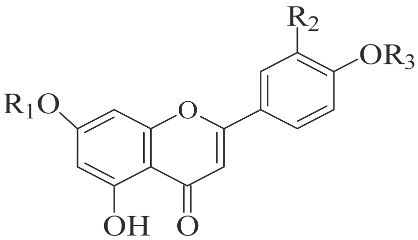
(III). *Flavonoids*

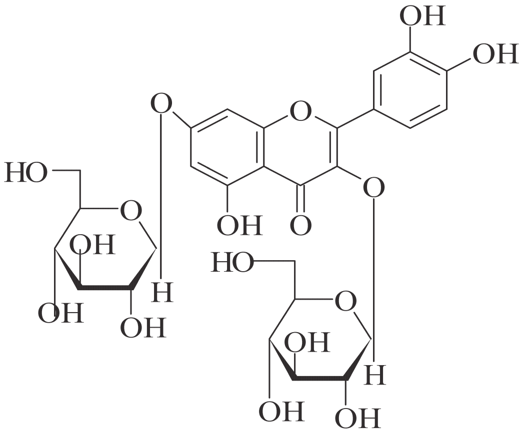


(2*S*)-eriodictyol 7-*O*-β–D-glucopyranosiduronic acid: 2*S*
(2*R*)-eriodictyol 7-*O*-β–D-glucopyranosiduronic acid: 2*R*



eupatilin

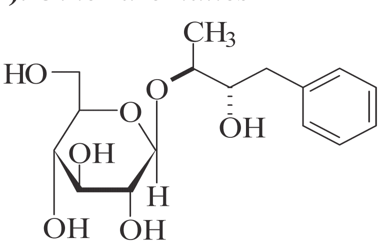




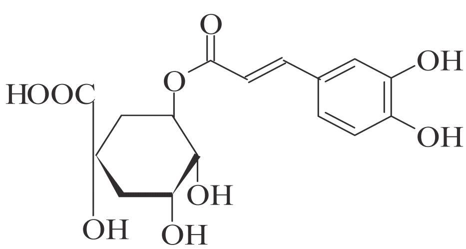
quercetin 3,7-di-*O*-β–D-glucopyranoside

luteolin: R_1=H, R_2=OH, R_3=H
luteolin-7-*O*-β–D-glucopyranoside: R_1=Glc, R_2=OH, R_3=H
luteolin 7-*O*-β–D-glucopyranosiduronic acid: R_1=GlcA, R_2=OH, R_3=H
apigenin 7-*O*-β–D-glucopyranoside: R_1=Glc, R_2=H, R_3=H
diosmetin 7-*O*-β–D-glucopyranoside: R_1=Glc, R_2=OH, R_3=CH_3
acacetin 7-*O*-(6"-α–L-rhamnopyranosyl)-β–D-glucopyranoside: R_1=Rha6--Glc, R_2=H, R_3=CH_3

(IV). *Other aromatics*



(2*S*,3*S*)-1-phenyl-2,3-butanediol 3-*O*-β–D-glucopyranoside



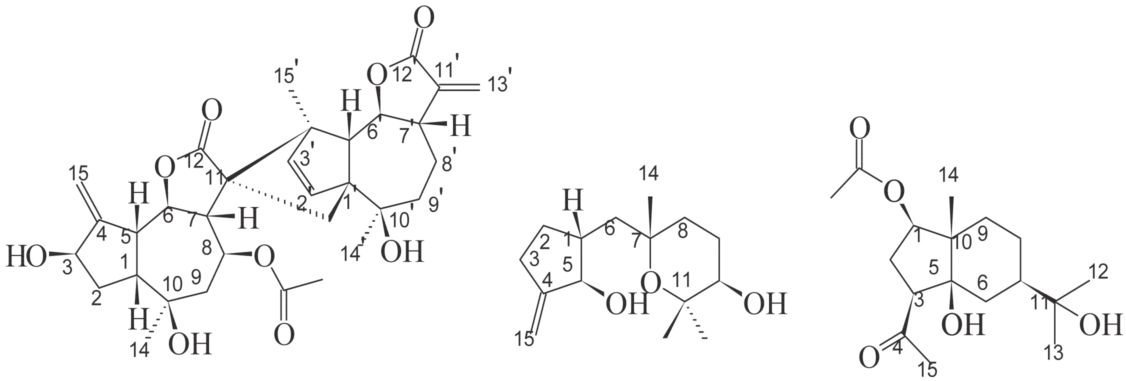
chlorogenic acid

Schme 2. Chemical constituents from the flowers of *Chrysanthemum indicum*

X-3-2. 菊花 Chrysanthemi Flos

* Disesquiterpenoid and Sesquiterpenes from the Flos of *Chrysanthemum indicum* Linn'e [Compositae]

** Jing Zhou, Jun-Song Wang, Yao Zhang, Peng-Ran Wang, Chao Guo, and Ling-Yi Kong : *Chem. Pharm. Bull.* **60**(8) 1067-1071 (2012)



1 **2** **3**

Fig. 1. Structures of Isolated Compounds

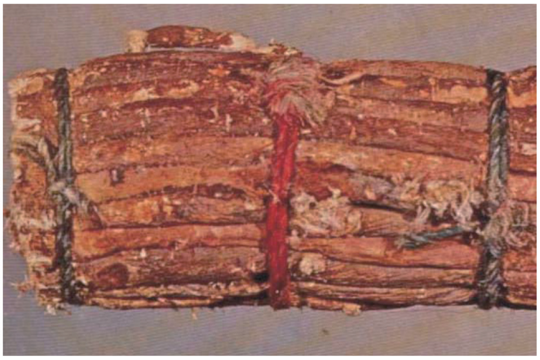
* One new Disesquiterpenoid (**1**), two new Sesquiterpenoids (**2**,**3**), were isolated from the dry flos of *Chrysanthemum indicum*.

II. 中藥材

001. 桂 皮 Cinnamomi Cortex

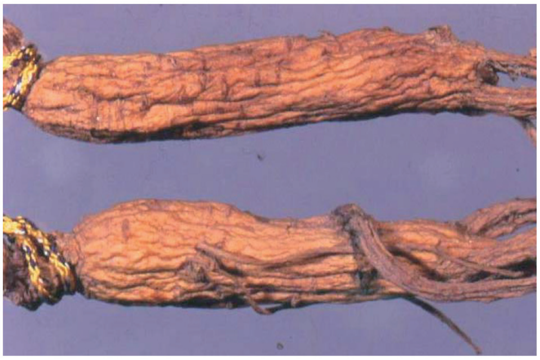
002. 石 膏 Gypsum Fibrosum

003-1. 黄 耆 Astragali Radix



003-2.晋 耆 Hedysarum mongholicum Turcz.

004. 大 棗 Zizyphi Fructus



005-1. 人 參 Ginseng Radix

005-2. 紅 參 Ginseng Radix (Rubra)

005-3-1. 生人參 Ginseng Radix (Fresh)

005-3-2. 生人參 Ginseng Radix (Fresh)

005-3-3. 生人參 Ginseng Radix (Fresh)

005-3-4. 生人參 Ginseng Radix (Fresh)

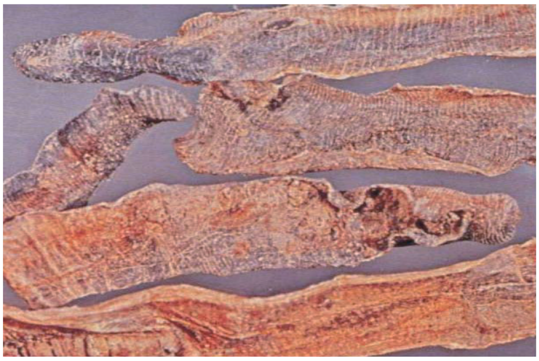
006. 白 朮 Atractylodis Rhizoma

007. 薏苡仁 Coicis Semen

008. 山 藥 Dioscoreae Rhizoma

009. 牛 膝 Achyranthis Radix

010. 犀 角 Rhinocerotis Cornu



011. 地 龍 Lumbricus

012. 竹 葉 Lophateri Folium

013. 蓮 肉 Nelumbinis Fructus

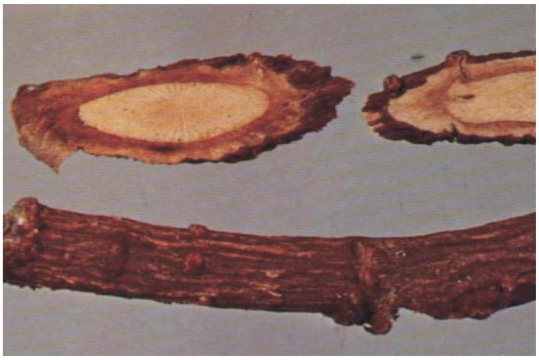
014. 胡黃連 Picrorrhizae Rhizoma

015. 商 陸 Phytolaccae Radix

016. 紅芽大戟 Knoxiae Radix

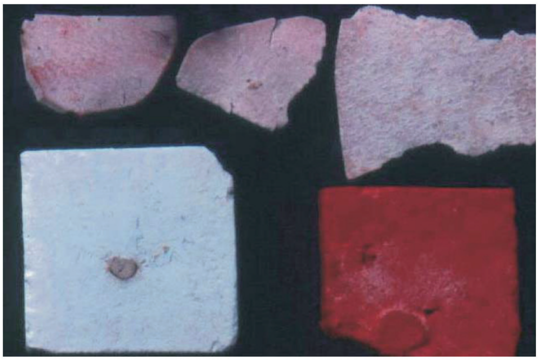
018-1. 廣防己 Aristolochia fanchi Wu

018-2. 漢防已 Sinomeni Caulis et Rhizoma



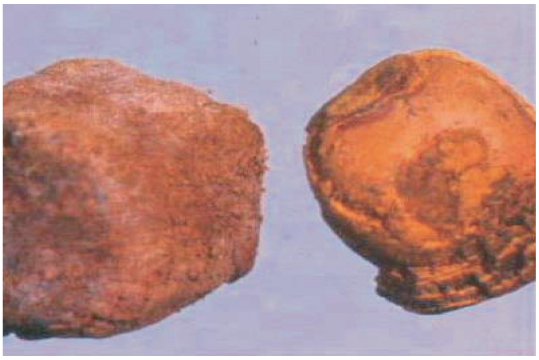
019. **山豆根** Sophorae Subprostratae Radix

020. **酸棗仁** Zizyphi Spinosi Semen



021. **茯 苓** Poria

022. **鈎藤鈎** Uncariae Ramulus et Uncus



023-1. **牛 黃** Bezoar Bovis

023-2. **牛 黃** Bezoar Bovis

024. **延胡索** Corydalis Tuber

025. **細 辛** Asiasari Radix

027. 川獨活 Angelicae Laxiflorae Radix

028. 羌 活 Notopterygii Rhizoma

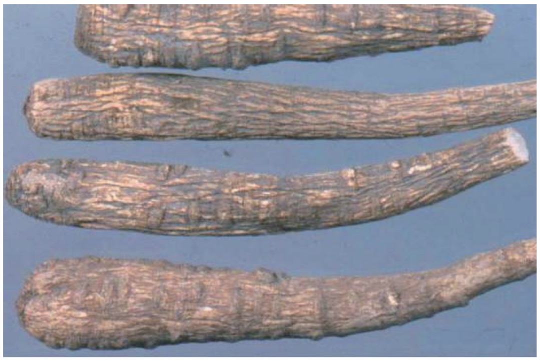
029-1. 柴 胡 Bupleuri Radix

029-2. 三島柴胡 Bupleuri Radix

030-1. 防 風
Saposhnikoviae Divaricatae Radix

030-2. 濱防風
Glehniae Radix et Rhizoma

031. 升 麻 Cimicifugae Rhizoma



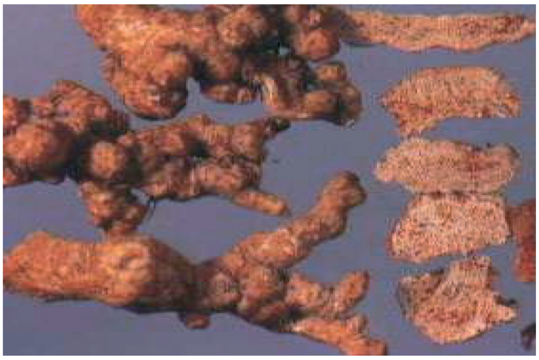
032. 白 芷 Angelicae Dahuricae Radix

033. 甘 草 Glycyrrhizae Radix

034. 知 母 Anemarrhenae Rhizoma

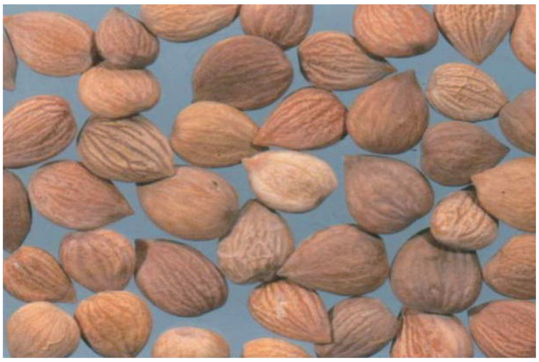
035. 地 黃 Rehmanniae Radix

036. 玄 參 Scrophulariae Radix



037. 蒼 朮 Atractylodis Lanceae Rhizoma

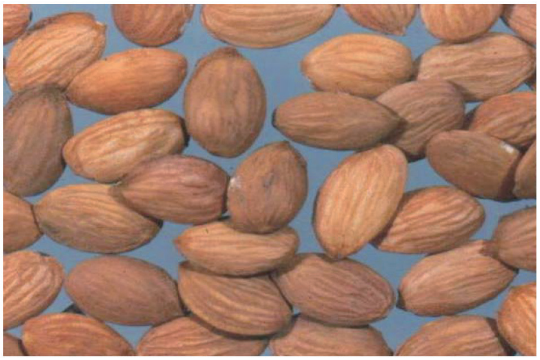
038. 澤 瀉 Alismatis Rhizoma



039. 杏 仁 Armeniacae Semen

040-1. 川貝母 Fritillariae Roylei Bulbus

040-2. 浙貝母
Fritillariae Thunbergii Bulbus



041. 桃 仁 Persicae Semen

042. 前 胡 Peucedani Radix

043. 桔 梗 Platycodi Radix

044. 遠 志 Polygalae Radix

045. 橘 皮 Aurantii Pericarpium

046. 麻 黄 Ephedrae Herba

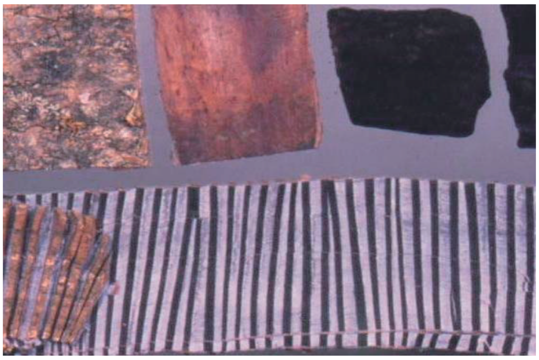
047. 紫蘇葉 Perillae Herba

048. 皀 莢 Gleditsiae Fructus

050. 射 干 Belamcandae Rhizoma

051. 川烏頭 Aconiti Tuber

052. 苦 參 Sophorae Radix



053. 杜 仲 Eucommiae Cortex

054. 桑白皮 Mori Radicis Cortex

055. 丹 參 Salviae Miltiorrhizae Radix

056-1. 川 芎 Ligustici Rhizoma

056-2. 日本川芎 Cnidii Rhizoma

057. 葛 根 Puerariae Radix

058. 栝樓根 Trichosanthis Radix

059. 麥門冬 Ophiopogonis Tuber

060. 麝 香 Moschus

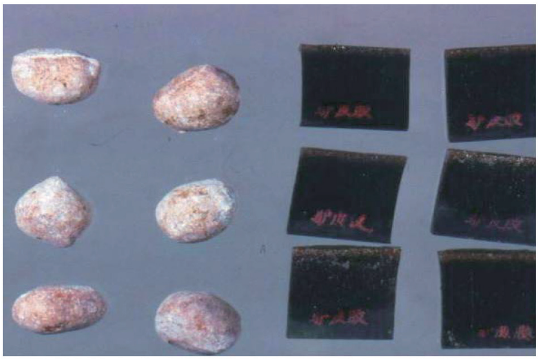
061. 蟾 酥 Bufonis Venenum

062. 何首烏 Polygoni Multiflori Radix

063. 決明子 Cassiae Torae Semen

064. 蒲 黃 Typhae Pollen

065. 枳實・枳殼 Aurantii Fructus Immaturus



066. 阿 膠 Asini Gelatinum

067. 槐 花 Sophorae Flos

068. 艾 葉 Artemisiae Argyi Folium

069. 厚 朴 Magnoliae Cortex

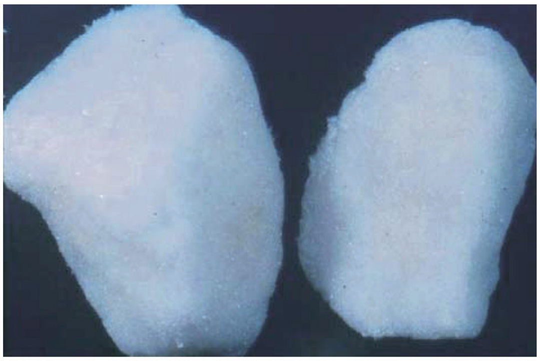
070. 薄 荷 Menthae Herba

071. 辛 夷 Magnoliae Flos

072. 茴 香 Foeniculi Fructus

073. 丁 香 Caryophylli Flos

074. 大 黄 Rhei Rhizoma



075. 芒 硝 Mirabilite

076. 牽牛子 Pharbitidis Semen

077. 麻子仁 Cannabidis Semen

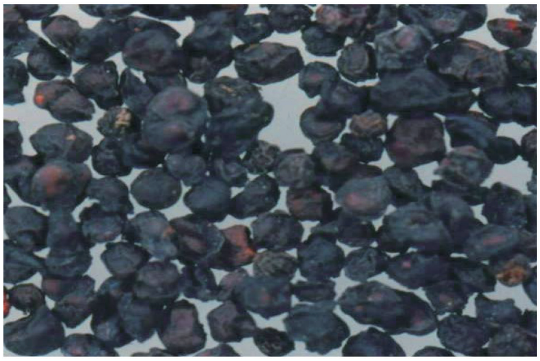
078. 巴 豆 Crotonis Semen

079. 蓖麻子 Ricini Semen

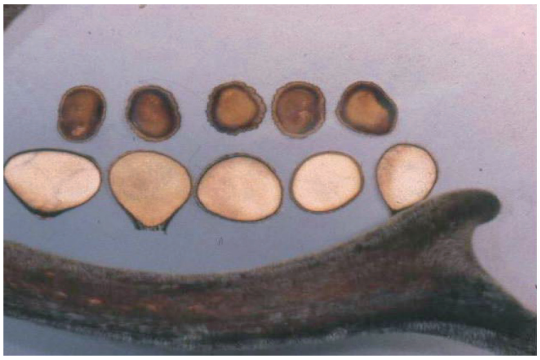

080. 半 夏 Pinelliae Tuber


081. 呉茱萸 Evodiae Fructus


082. 茵陳蒿 Artemisiae Capillaris Spica


083. 五味子 Schisandrae Fructus


084. 山梔子 Gardeniae Fructus


085. 鹿 茸 Cervi Parvum Cornu

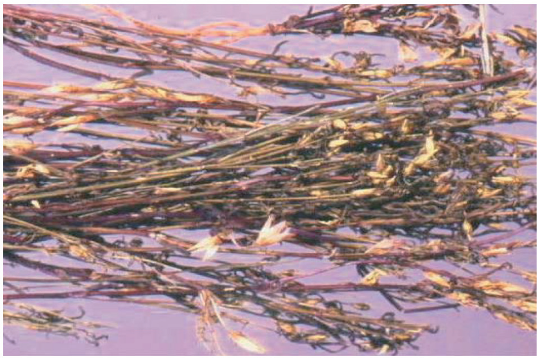


086. 白芍藥‧赤芍藥 Paeoniae Radix

087. 地骨皮·枸杞子 Lycii Radicis Cortex ▪ Lycii Fructus

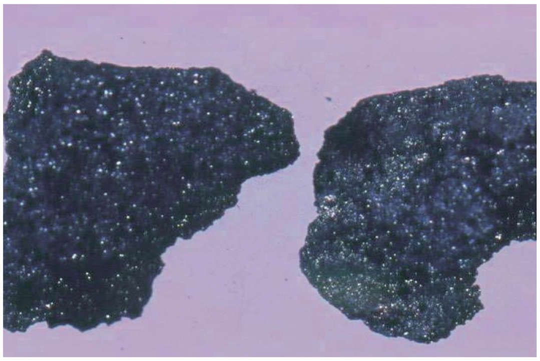
088. 生薑·乾薑 Zingiberis Rhizoma

089. 玄 草 Geranii Herba



090. 當 藥 Swertiae Herba

091. 熊 膽 Fel Ursi



092. 蘆 薈 Aloe

093. 木 香 Saussureae Radix

094. 兒 茶(阿仙藥) Gambir

095. 營 實 Rosae Multiflorae Fructus

096. 鬱 金 Curcumae Rhizoma

097. 肉豆蔻 Myristicae Semen

098. 海人草 Digenea

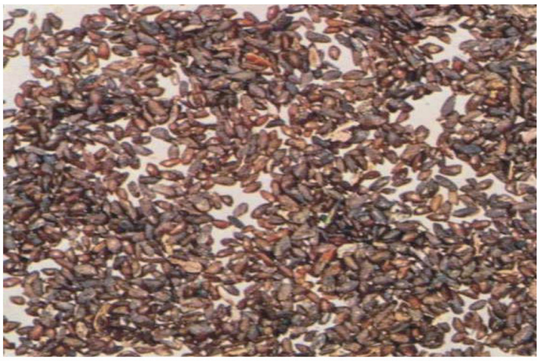
099. 木 通 Akebiae Quinatae Caulis

100. 猪 苓 Polyporus

101. 甘 遂 Euphorbiae Kansui Radix

102. 山茱萸 Corni Fructus

103. 滑 石 Talcum



104. 車前子 Plantaginis Semen

105. 龍 膽 Gentianae Scabrae Radix

106. 當 歸 Angelicae Sinensis Radix

107. 益母草 Leonuri Herba

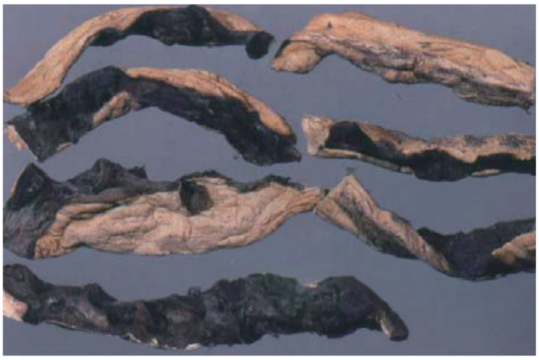
108. 紅 花 Carthami Flos


109. 香附子 Cyperi Rhizoma


110. 芫 花 Daphnis Genkwae Flos


111. 蟅 蟲 Eupolyphaga


112. 水 蛭 Hurudo


113. 川 骨 Nupharis Rhizoma


114. 虻 虫 Tabanus


115. 蛇床子 Cnidii Monnieri Fructus


116. 蕺 菜 Houttuyniae Herba


117. 夏枯草 Prunellae Spica


118. 牛蒡子 Arctii Fructus


119-1. 軟紫根 Lithospermi Radix


119-2. 硬紫根 Lithospermi Radix


120. 土茯苓 Smilacis Glabrae Rhizoma


121. 白花敗醬 Patriniae Herba

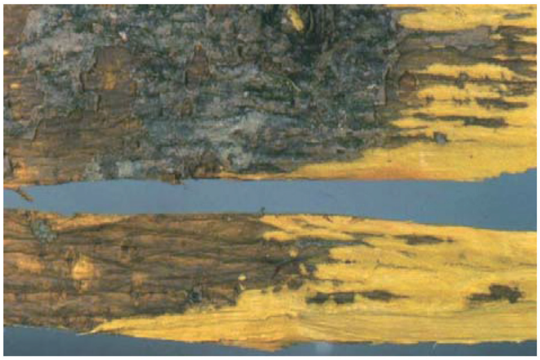

122. 反 鼻 Agkistrodon Japonicae (1)


122. 反 鼻 Agkistrodon Japonicae (2)

123. 揚梅皮 Myricae Cortex

124-1. 黃 連 Coptidis Rhizoma

124-2. 黃 連 Coptidis Rhizoma



125. 黃 柏 Phellodendri Cortex

126. 黃 芩 Scutellariae Radix

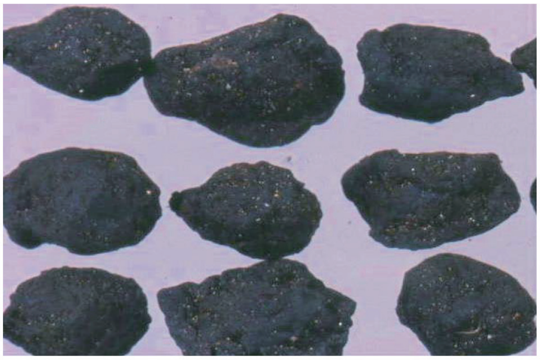
127. 金銀花 Lonicerae Flos

128. 連 翹 Forsythiae Fructus

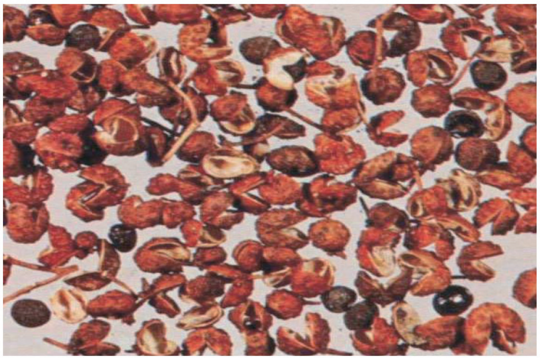
129. 蒲公英 Taraxaci Herba

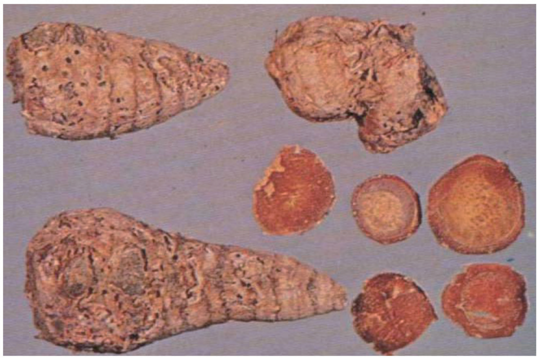

130. 牡丹皮 Moutan Cortex

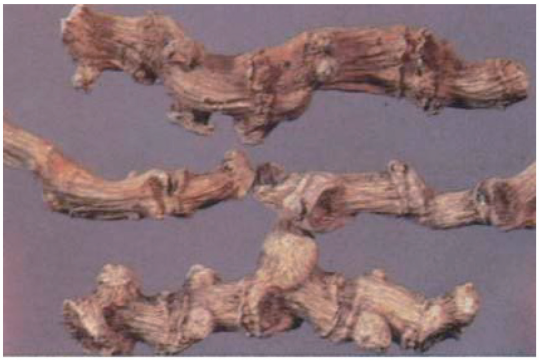

131. 使君子 Quisqualis Fructus


132. 烏 梅 Mume Fructus


133. 檳榔子 Arecae Semen


134. 花 椒 Zanthoxyli Fructus


135. 莪 朮 Zedoariae Rhizoma


I-1. 竹節人參 Panacis Japonici Rhizoma

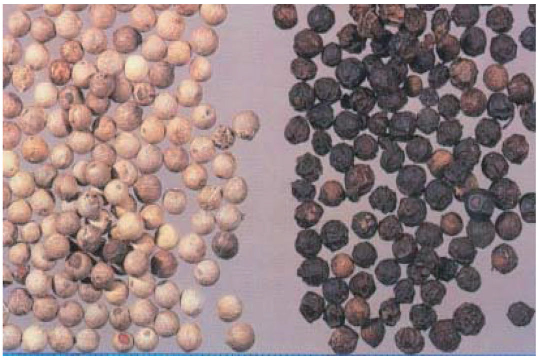

I-2-1. 蒺藜子 Tribuli Fructus

I-2-2. 蒺藜子 Tribuli Fructus

II-1. 天 麻 Gastrodiae Rhizoma

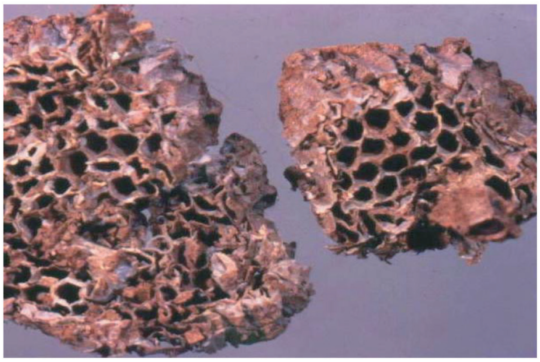
II-2. 天南星 Arisaematis Rhizoma

II-3. 荊 芥 Schizonepetae Herba

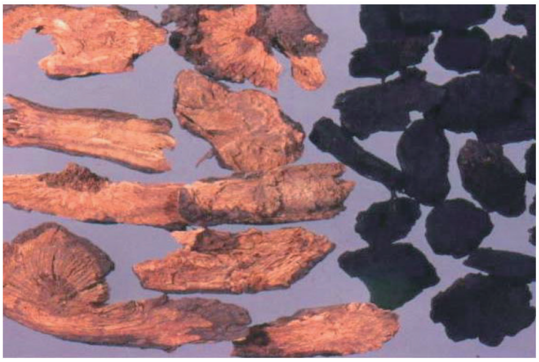


II-4. 胡 椒 Piperis Nigri Fructus

III-1. 地骨皮 Lycii Radicis Cortex



V-1. 露蜂房 Vespae Nidus



V-2. 地 榆 Sanguisorbae Radix

VI-1. 牡 蠣 Ostreae Testa

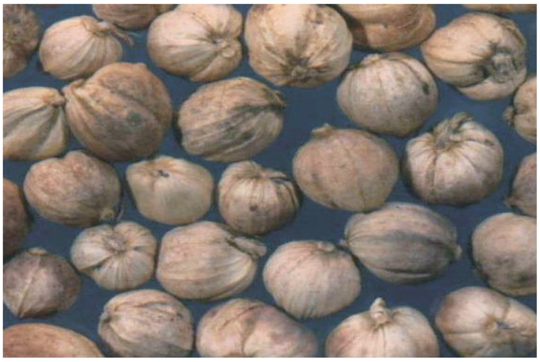
VI-2. 天台烏藥 Linderae Radix

VI-3. 白頭翁 Pulsatillae Radix

VI-4. 藿 香 Pogostemi Herba

VI-5. 山楂子 Crataegi Fructus

VI-6. 麥 芽 Hordei Germinatus Fructus



VI-7. 白豆蔻 Amomi Cardamomi Fructus

VI-8. 縮 砂 Amomi Semen

III. 原植物

001-1. 肉　桂 [*Cinnamomum cassia* Blume]

001-2. 肉　桂 [*Cinnamomum cassia* Blume]

002.　石　膏 [Gypsum Fibrosum]

004. 大　枣 [*Zizyphus jujuba* Miller]

003. 蒙古岩黄耆 [*Hedysarum mongholicum* Turxz.]

003. 膜荚黄耆 [*Astragalus membranaceus* Bunge]

003. 内蒙黄耆 [*Astragalus mongholicus* Bunge]

005. 人 參 [*Panax ginseng* C.A. Meyer]

006.白 朮
[*Atractylodes ovata* De Candolle]

006.和白朮
[*Atractylodes japonica* Koidzumi et Kitamura]

007. 薏苡仁
[*Coix lachryma-jobi* L.var *mayuen* Stapf]

008. 山 藥
[*Dioscorea batatas* Decaisne]

009. 川牛膝 [*Cyathula officinalis* Kuan]

009. 和牛膝
[*Achyranthes fauriei* Leveille et Vaniot]


013. **蓮** [*Nelumbo nucifera* Gaert.]


015. **商 陸(果實)**
[*Phytolacca esculenta* Van Houtt.]


016. **京大戟** [*Euphorbia pekinensis* Rupr.]

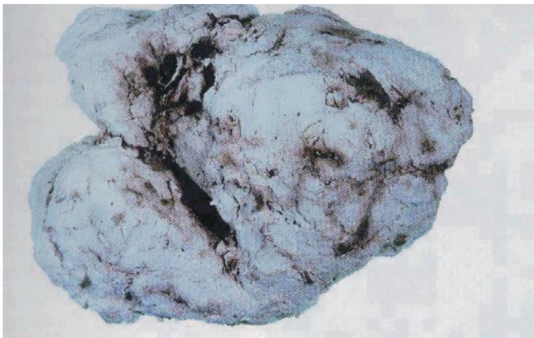

017. **獨行菜(葶藶)**
[*Lepidium apetalum* Willd.](Teirekishi)


018. **木防已**
[*Cocculus orbiculatus* DC.]


018. **粉防已** [*Stephania tetrandra* S.Moore]


018. **漢防己**
[*Sinomenium acutum* Rehder et Wilson]

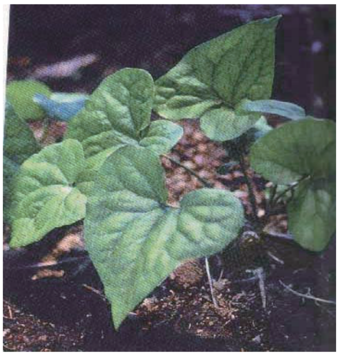

019. **廣豆根** [*Sophora tonkinensis* Gagnep.]


021. **茯　苓** [*Poria cocos* Wolf]


020. **酸棗仁**
Zizyphus jujube Mill.
var. *spinosa* Hu ex H. F. Chou


024. **延胡索**
[*Corydalis yanhusuo* W.T. Wang]

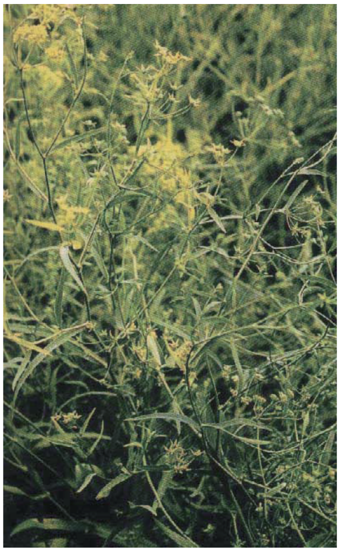

022. **鈎藤鈎**
[*Uncaria rhynchophylla* Miq.]


025. **薄葉細辛**
[*Asiasarum sieboldi* F. Maekawa]


023. **牛　黄** [Bezoar Bovis]


026. **接骨木** [*Sambucus williamsii* Hance]

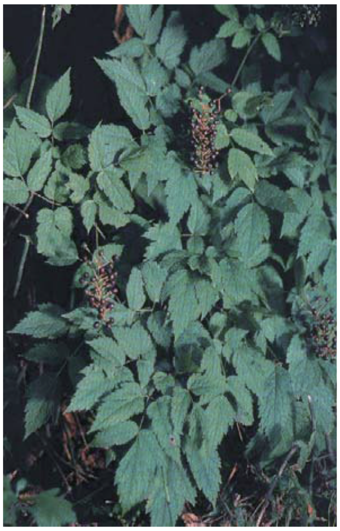
027. 九眼獨活(和羌活)
[*Aralia cordata* Thunb.]



029. 三島柴胡
[*Bupleurum falcatum* L.]

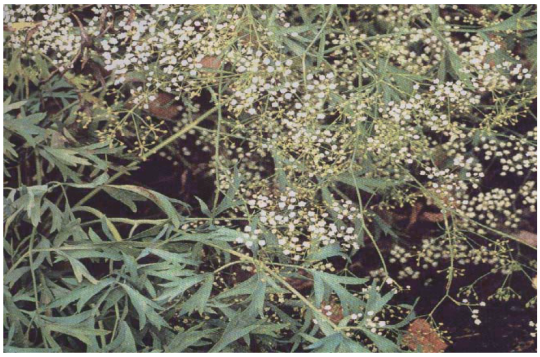
029. 北柴胡
[*Bupleurum chinense* DC.]

028. 羌 活(四川省産)
Notopterygium incisum Ting ex H.T. Chang



031. 升 麻[*Cimicifuga simplex* Worm.]

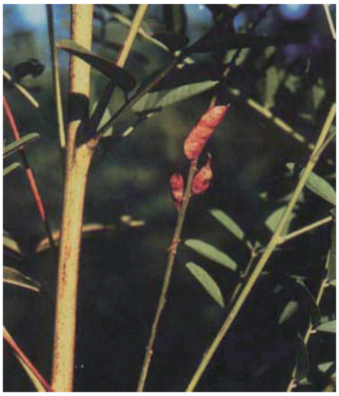
30. 濱 防風
[*Glehina littoralis* Schmidt et Miquel.]



030. 防 風 [*Saposhnikovia divaricata* Schis]

032. 白　芷
[*Angelica dahurica* Benth. et Hook.]

033. 支那甘草
[*Glycyrriza echinata* L.]



033. 西北甘草
[*Glycyrrhiza glandulifera* Regel et Herder.]

033. 烏拉爾甘草
[*Glycyrrhiza uralensis* Fischer et DC.]

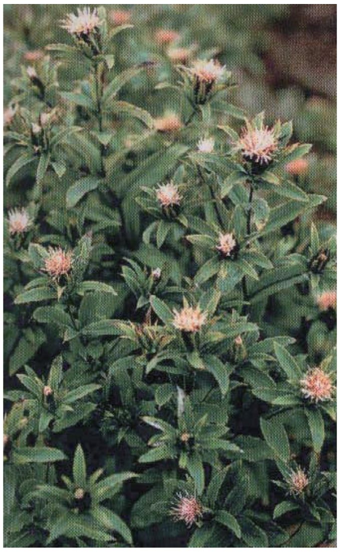
033. 新疆甘草
[*Glycyrrhiza glabra* L.]

035. 懷慶地黃
[*Rehmannia glutinosa* var. *hueichingensis* Chao et Shih]

034. 知　母
[*Anemarrhena asphodeloides* Bunge]

035. 赤矢地黃 [*Rehmannia glutinosa* var. *purpurea* Makino]

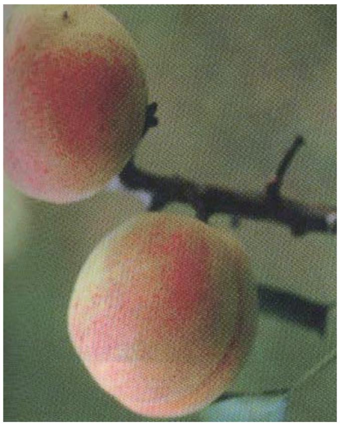
036. 玄 參
[*Scrophularia buergeriana* Miq.]



037. 蒼 朮
[*Atractylodes lancea* DC.]

038. 澤 瀉
[*Alisma orientale* Juzepczuk]

039. 杏 仁-1
[*Prunus armeniaca* var. *ansu* Maxim.]

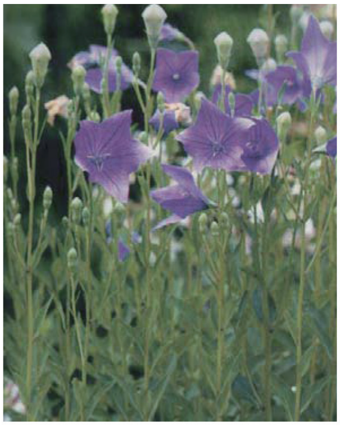


039. 杏 仁-2
[*Prunus armeniaca* var. *ansu* Maxim.]

041. 桃-1(花) [*Prunus persica* Batsch.]

040. 浙貝母 [*Fritillaria thunbergii* Miq.]

041. 桃-2(果實) [*Prunus persica* Batsch.]



043. **桔　梗**
[*Platycodon grandiflorum* De Candolle]

042. **白花前胡**
[*Peucedanum praeptorum* Dunn.]

044. **寬葉遠志**
[*Polygala sibirica* L.]

042. **紫花前胡** [*Peucedanum decursivum* Max.]

045. **枳　殼** [*Citrus wilsonii* Tanaka]

045. **陳　皮(溫州蜜柑)**[*Citrus unshiu* Mark.]

045. **溫州蜜柑** [*Citrus unshiu* Mark.]

046. 木賊麻黄 [*Ephedra equisetina* Bge.]

046. 草麻黄 [*Ephedra sinica* Stapf.]

046. 雙穗麻黄 [*Ephedra distachya* L.]

047. 野生紫蘇 [*Perilla frutescens* var. *acuta* Kudo]

047. 紫　蘇
[*Perilla frutescens* var. *crispa* Decaisne]

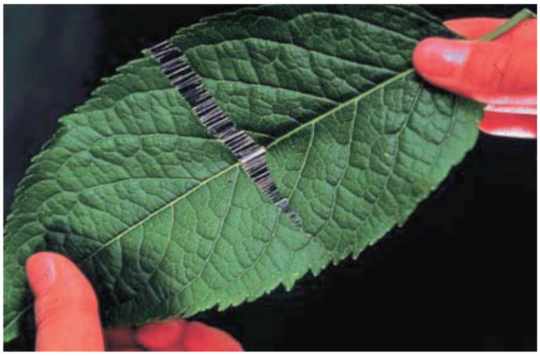
048. 皀　莢
[*Gleditsia officinalis* Hem.]

049. 南　天
[*Nandina domestica* Thunb.]


050. 射　干 [*Belamcanda chinensis* DC.]


051. 山烏頭 [*Aconitum japonicum* Thunb.]

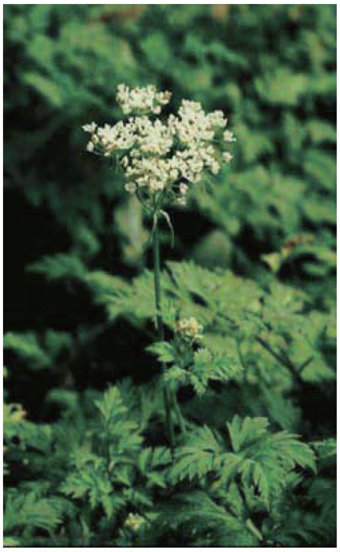

051. 附　子
[*Aconitum carmichaeli* Debx.]


053. 杜　仲 [*Eucommia ulmoides* Oliver]


054. 桑 [*Morus bombycis* Koidzumi]


052. 苦　參
[*Sophora flavescens* Aiton]


055. 丹　參 [*Salvia miltiorrhiza* Bunge]



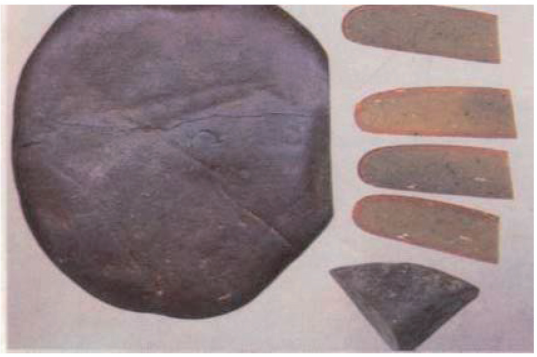
056. 川 芎
[*Ligusticum chuanxiong* Hort.]

057. 葛 藤
[*Pueraria lobata* Ohwi]

059. 麥門冬
[*Ophiopogon japonicus* Ker-Gawler]

058. 栝 樓 [*Trichosanthes kirilowii* Maxim.]

060. 麝 香 [Moschus]



061. 蟾 酥 [Bufonis Venenum]

062. 何首烏
[*Polygonum multiflorum* Thunb.]

063. 決　明 [*Cassia tora* L.]

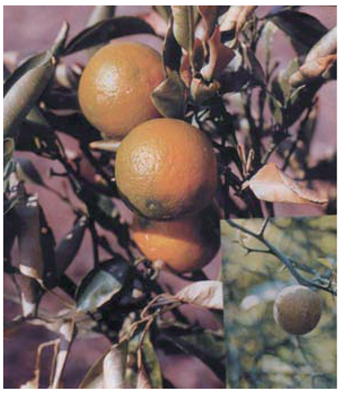
064. 東方蒲黃 [*Typha orientalis* Presl]

064. 長胞香蒲 [*Typha angustata* Bory et Chaub.]

066. 阿　膠 [*Asini Nigra* Gelatinum]

067. 槐　花 [*Sophora japonica* L.]

069. 厚　朴 [*Magnolia officinalis* Rehder]



065. 枳　實
[*Poncirus trifoliata* Raf.]

068. 艾　葉
[*Artemisia argyi* Levl. et Vant.]

070. 薄　荷
[*Mentha arvensis* L.]


071. 辛　夷 [*Magnonia kobus* DC.]


074. 唐古特大黃 [*Rheum tanguticum* Maxim. et Balf.]


072. 茴　香
[*Foeniculum vulgare* Miller]

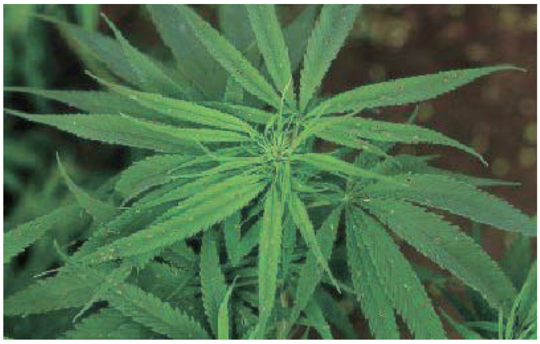

073. 丁　香
[*Syzygium aromaticum*
Merrill et Perry]


074. 和大黃
[*Rheum undulatum* L.]


074. 藥用大黃 [*Rheum officinale* Baill.]


074. 掌葉大黃 [*Rheum palmatum* L.]

075. 芒　硝 [Mirabilite]



077.大　麻 [*Cannabis sativa* L.]

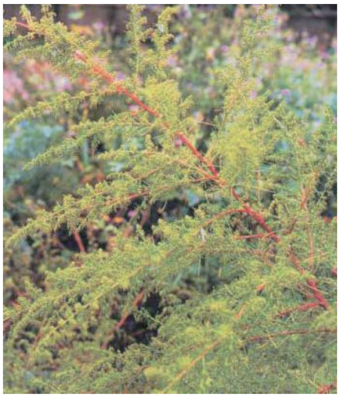
076. 牽　牛
[*Pharbitis nil* Choisy]

078. 巴　豆
[*Croton tiglium* L.]

080. 半　夏
「*Pinellia ternata* Breit.」

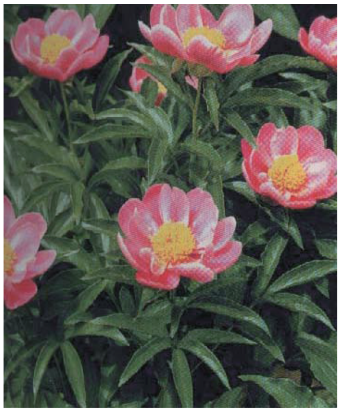
079. 蓖　麻 [*Ricinus communis* L.]

081. 吳茱萸 [*Evodia rutaecarpa* Benth.]



082. **茵陳蒿**
[*Artemisia capillaris* Thunb.]

083. **五味子樹**
[*Schisandra chinensis* Baillon]



086. **芍　藥**
[*Paeonia lactiflora* Pallas]

084. **山梔子** [*Gardenia jasminoides* Ellis]

085. **鹿　茸** [Cervi Parvum Cornu]

087. **枸杞子**[*Lycium chinense* Mill.]

088. **生　薑**-1
[*Zingiber officinale* Roscoe]

088. 生 薑-2
[*Zingiber officinale* Roscoe]

090. 當 藥
[*Swertia japonica* Makino]

093. 木 香
[*Saussurea lappa* Clarke]

089 玄 草 [*Geranium thunbergii* Sieb. et Zecc.]

091. 熊 膽 [Fel Ursi]

092. 蘆 薈 [*Aloe ferox* Miller]

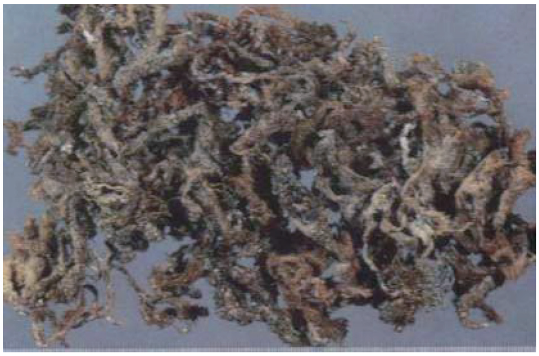
094. 黑児茶 [*Acacia catechu* L.]


095. 營 實 [*Rosa multiflora* Thunb.]


097. 肉豆蔻 [*Myristica fragrans* Van Houtt.]


096. 鬱 金 [*Curcuma longa* L.]


101. 甘 遂 [*Euphorbia kansui* Liou]


098. 鷓鴣菜 [*Digenea simplex* C. Agardh]


099. 木 通
[*Akebia quinata* Decne.]


100. 豬 苓 [*Polyporus umbellatus* Fries]

102. 山茱萸
[*Cornus officinalis* Sieb. et Zucc.]

104. 車前草 [*Plantago asiatica* L.]

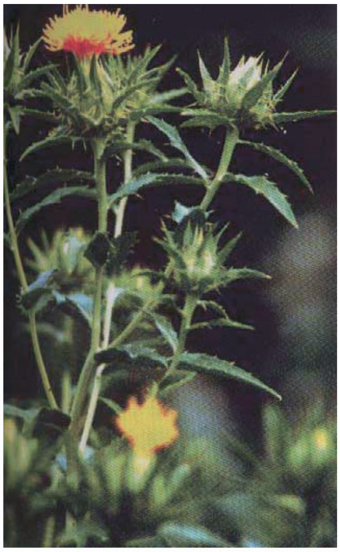
106. 和當歸
[*Angelica acutiloba* Kitagawa]

103. 滑　石 [Talcum]

105. 龍　膽 [*Gentiana scabra* Bunge]

106. 川當歸 [*Angelica sinensis* Diels]

107. 益母草 [*Leonurus sibiricus* L.]

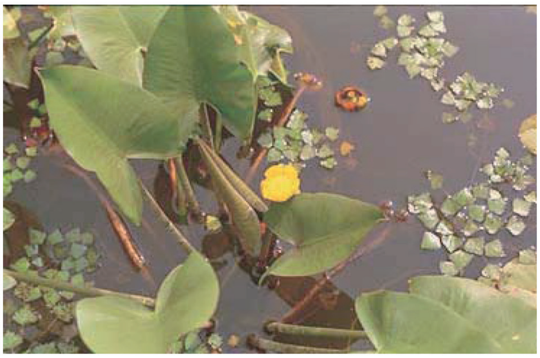

108. 紅 花
[*Carthamus tinctorius* L.]


110. 芫 花 [*Daphne genkwa* Sieb. et Zucc.]


109. 莎 草
[*Cyperus rotundus* L.]

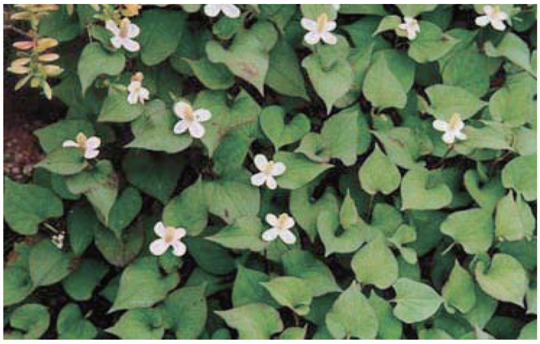

111. 蟅 蟲 [Eupolyphaga]


112. 水 蛭 [Hirudo]


113. 川 骨 [*Nuphar japonicus* De Candolle]


114. 虻 蟲 [Tabanus]

115. **蛇床子** [*Cnidium monnieri* Cuss.]



116. **蕺 菜** [*Houttuynia cordata* Thunb.]

117. **夏枯草** [*Prunella vulgare* L.]

118. **牛 蒡** [*Arctium lappa* L.]

119. **紫 根**
[*Lithospermum erythrorhizon* Sieb. et Zucc.]

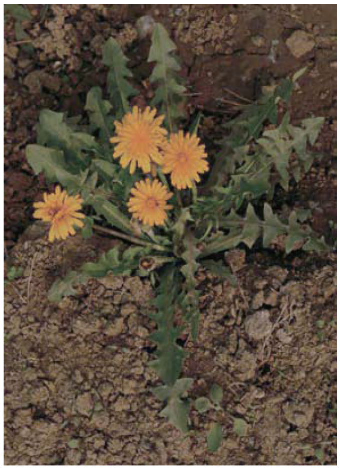
120. **土茯苓** [*Smilax glabra* L.]

121. **敗 醬** [*Patrinia villosa* Juss.]

122. **反 鼻** [Agkistrodon Japonicae]

123. 揚 梅
[*Myrica rubra* Sieb. et Zucc.]

126. 黄 芩
[*Scutellaria baicalensis* Georgi]



129. 蒙古蒲公英
[*Taraxacum mongolicum* Hand.-Mazz.]

124.黄 連
[*Coptis chinensis* Franch.]

125. 黄 柏
[*Phellodendron amurense* Ruprecht]

128. 連 翹 [*Forsythia suspensa* Vahl.]

127. 金銀花 [*Lonicera japonica* Thunb.]

129. 紅梗蒲公英
[*Taraxacum erythropadium* Kitag.]

130. 牡 丹
[*Paeonia suffruticosa* Andrews]

131. 使君子
[*Quisqualis indica* L.]

132. 梅-1
[*Prunus mume* Sieb. et Zucc.]

132. 梅-2
[*Prunus mume* Sieb. et Zucc.]

133. 檳榔樹 [*Areca catechu* L.]

134. 山 椒 [*Zanthoxylum piperitum* DC.]


134. 花　椒 [*Zanthoxylum bungeanum* Maxim.]


135. 莪　朮 [*Curcuma zedoaria* Roscoe]


I-1. 竹節人參
[*Panax japonicus* C.A.Meyer]


I-2. 蒺藜子
[*Tribulus terrestris* L.]


II-1. 天　麻
[*Gastrodia elata* Blume]


II-2. 天南星 [*Arisaema erubescens* Schott.]


II-3. 荊　芥 [*Schizonepeta tenuifolia* Briq.]

II-4. 胡 椒 [*Piper nigrum* L.]

VI-2. 天台烏藥
[*Lindera strychnifolia* Vill.]

V-2. 地 榆
[*Sanguisorba officinalis* L.]

II-6 . 龍 骨 [Fossilia Ossis Mastodi]

VI-1. 牡 蠣 [Ostreae Testa]

VI-2. 衡州烏藥 [*Cocculus laurifolius* DC.]

VI-3. 白頭翁
[*Pulsatilla cermua* Berch. et Presl.]

VI-4. 廣藿香
[*Pogostemon cablin* Benth.]

VI-5. 山楂子
[*Crataegus cuneata* Sieb. et Zucc.]

VI-6. 大　麥 [*Hordeum vulgare* L.]

X-2. 苦　楝 [*Melia azedarach* L.]

顏焜熒教授　履歷

姓名：顏焜熒（YEN KUN-YING）

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學歷：民國三十一年（1942）三月　台中州立第一中學畢業
（國立台中第一高級中學）
民國三十六年（1947）三月　日本　大阪藥學專門學校畢業
（日本　大阪大學　藥學部）大阪藥學士
民國三十九年（1950）三月　日本大阪理工科大學　理工學部畢業
（日本　近畿大學　理工學部）理學士
民國四十六年（1957）三月　日本　大阪大學　專攻生畢業
民國四十六年（1957）四月　日本　京都大學藥學部　研究生入學
民 國 五 十 年（1961）九月　日本　京都大學藥學博士頒授

現職：台北醫學大學　名譽教授
財團法人顏焜熒文教基金會創辦人

曾任：台北醫學院教授（民國五十二年四月至八十三年七月）
兼夜間部主任、藥學研究所教授、生藥學研究所所長
行政院　衛生署　顧問（民國八十三年三月至八十八年三月）

經歷：教育部　副教授證書　民國五十三年十月（副字第 609 號）
教育部　教授證書　民國五十八年九月（教字第 915 號）
考試院　考選部　醫事人員檢驗面試委員　民國五十五年迄今
中華學術院　研士　民國五十八年六月迄今
行政院　衛生署　藥物食品檢驗局　科技諮詢顧問
民國七十四年三月至七十六年三月
行政院　衛生署　中醫藥委員會委員
民國八十五年十一月至八十七年十月
行政院　衛生署　顧問兼藥物審議委員會　中藥製劑審議小組召集人
民國八十六年九月至八十七年八月
行政院　衛生署　中華藥典中藥集小組委員
民國九十二年六月至改版止

其他曾任：中華文化學院　實業計劃研究所　碩士、博士學位考試委員
中國醫藥學院　中國藥學研究所　碩士、博士學位考試委員
高雄醫學院　藥學研究所　碩士、博士學位考試委員

國防醫學院　藥學研究所　碩士學位考試委員
國立台灣師範大學　化學研究所　博士學位考試委員
國立台灣大學　藥學研究所　碩士學位考試委員

專長學科：生藥學、天然物化學、本草學、中藥概論、炮製學、中藥方劑學

學會活動：中華生藥科技發展協會名譽理事長、中國藥用植物學會名譽理事長、中華民國自然療法學會顧問、中華民國中醫藥學會顧問、中華民國天然藥物學會理事、中華藥學協會常務理事、中國藥學會會員、台灣醫學會會員、日本藥學會會員、日本生藥學會會員、第 13、14、15、16、17 屆國際東洋醫學會理事

研究經歷：⑴繖形科植物之生藥學的研究
⑵台灣產繖形科植物之香豆素成分研究
⑶台灣產柑橘類植物之成分研究
⑷台灣產福木屬植物之成分研究
⑸台灣產羊齒類植物之成分研究
⑹台灣藥用植物之多酚類成分研究
⑺台灣產植物之肝障礙抑制成分研究
⑻中藥材品質管制之研究
⑼抗病毒中藥材之研究
⑽慢性病之中藥方劑研究
⑾濃縮中藥品質管制之研究
⑿中藥免疫調節作用之研究
⒀中藥對肝炎療效之測定
⒁中藥方劑品質管制之研究

賞：⑴金鼎獎：行政院　新聞局「原色常用中藥圖鑑・原色中藥飲片圖鑑」（圖書著作獎）　民國七十年十二月二十九日
⑵六藝獎章：教育部「服務二十年」　民國七十二年九月二十八日
⑶教育部獎狀：教育部「原色生藥學」（七十四學年度講義類甲等獎）　民國七十五年四月十八日
⑷教育部獎牌：教育郁「教學特優教師」　民國八十三年六月一日
⑸壹等服務獎章：行政院「連續服務三十年」　民國八十三年十二月十七日
⑹王民寧獎：王民寧先生紀念基金會「醫藥學術貢獻獎」　民國八十三年十二月十九日
⑺台北醫學院　名譽教授：台北醫學院　民國八十四年二月一日
⑻藥學教育貢獻獎：鄭氏藥學文教基金會　民國八十四年十二月一日
⑼壹等衛生獎章：行政院衛生署　民國八十六年七月二十三日
⑽優秀著作獎：立夫醫藥文教基金會「原色常用中藥圖鑑」（英文版）　民國八十八年三月十四日
⑾行政院衛生署獎牌：行政院衛生署　民國八十八年三月三十日